



ARMSTRONG TOOLS

ARMSTRONG BROS. TOOL CO.

CHICAGO 30, U.S.A.

C A T A L O G 57

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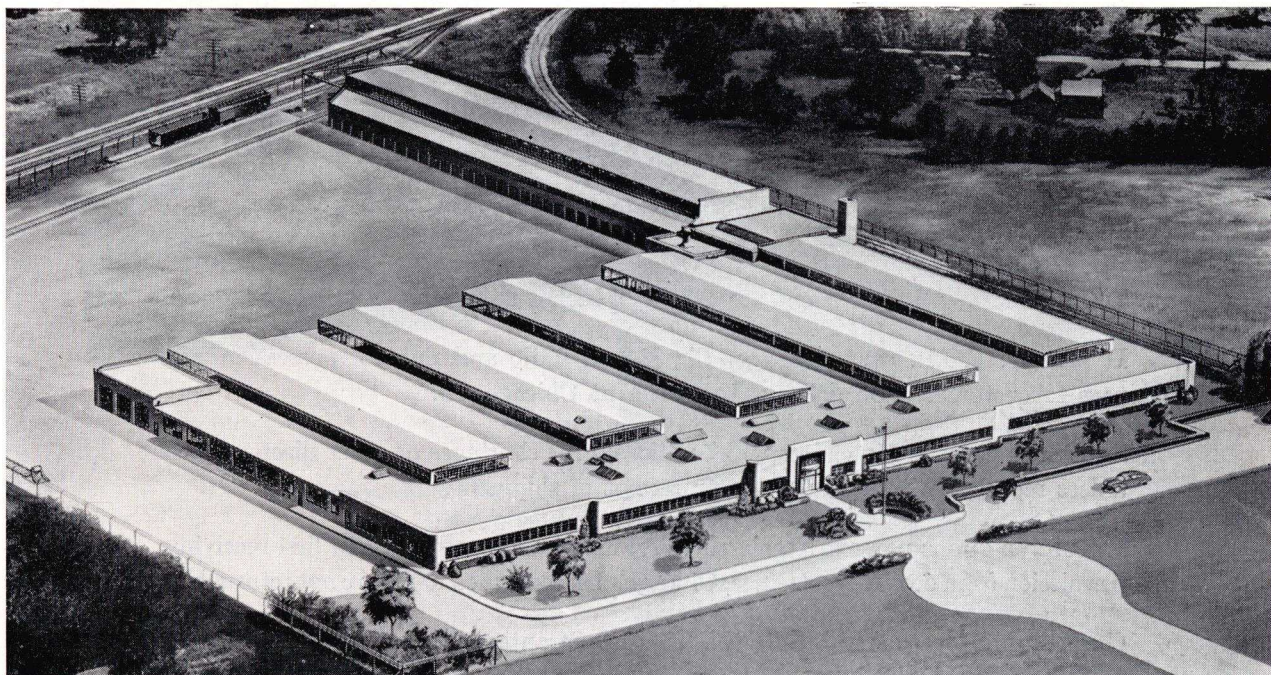
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ARMSTRONG BROS. TOOL CO.

Founded in 1890



The New Modern Plant and General Offices of

ARMSTRONG BROS. TOOL CO.

5200-5300 W. ARMSTRONG AVENUE • CHICAGO 30, ILLINOIS, U.S.A.

Cable Address: "STRONGARM" CHICAGO

EASTERN WAREHOUSE
and SALES OFFICE
NEW YORK, N. Y.

PACIFIC COAST WAREHOUSE
and SALES OFFICE
SAN FRANCISCO, CALIF.

MANUFACTURERS OF

TOOL HOLDERS, TURRET LATHE AND SCREW MACHINE TOOLS, TOOL BITS, BLADES, CUTTERS, AND HIGH SPEED STEEL, MACHINE SHOP SPECIALTIES, LATHE AND MILLING MACHINE DOGS, CLAMPS, RATCHET DRILLS AND DRILLING POSTS, WRENCHES BOTH OPEN END AND SOCKET AND "ARMSTRONG BROS." PIPE TOOLS.

CATALOG 57

CATALOG 57 SUPERSEDES ALL PREVIOUS EDITIONS WHICH ARE HEREBY WITHDRAWN

WHEN ORDERING, specify our catalog number and the name of the item desired.

PRICES for the tools or items in this catalog are shown in a separate price list which we will gladly furnish upon request. Prices are subject to change without notice.

ALL FINISHES, MATERIALS AND DESIGNS as mentioned in this catalog are subject to change without notice.

DIMENSIONS:—All dimensions are shown in inches unless otherwise stated.

DELIVERY: F.O.B. cars, Chicago, Ill., U.S.A. Title and right of possession will pass to customer upon delivery to carrier at Chicago, Ill.

SHORTAGE CLAIMS: No claims will be allowed for shortages or other discrepancies unless reported within 10 days after receipt of shipment.

RETURNED GOODS POLICY: No merchandise may be returned without first receiving permission from our General Office, Chicago. Discontinued items are not returnable.

GUARANTEE: Every ARMSTRONG Tool is guaranteed against defective material and workmanship.

ARMSTRONG Tools are carried in stock by all leading industrial supply distributors.

Man . . .

Without tools he is nothing

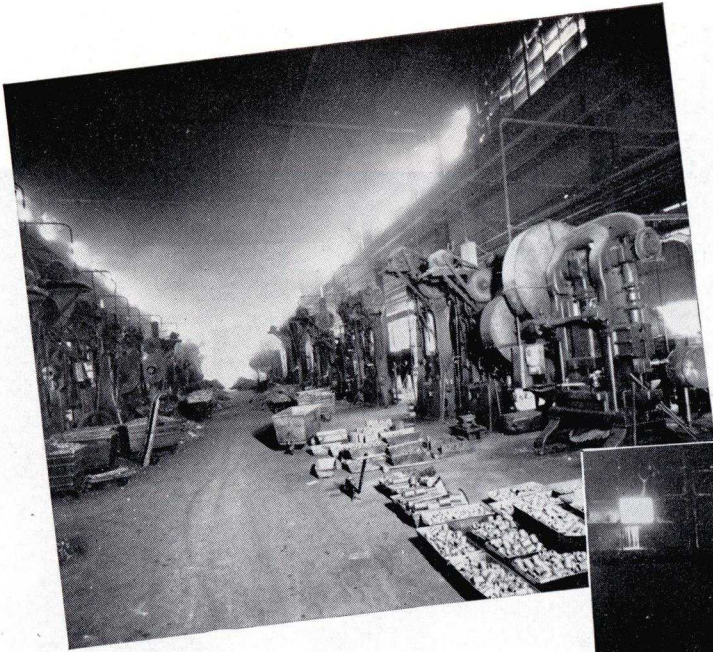
with tools he is all . . .

Thomas Carlyle



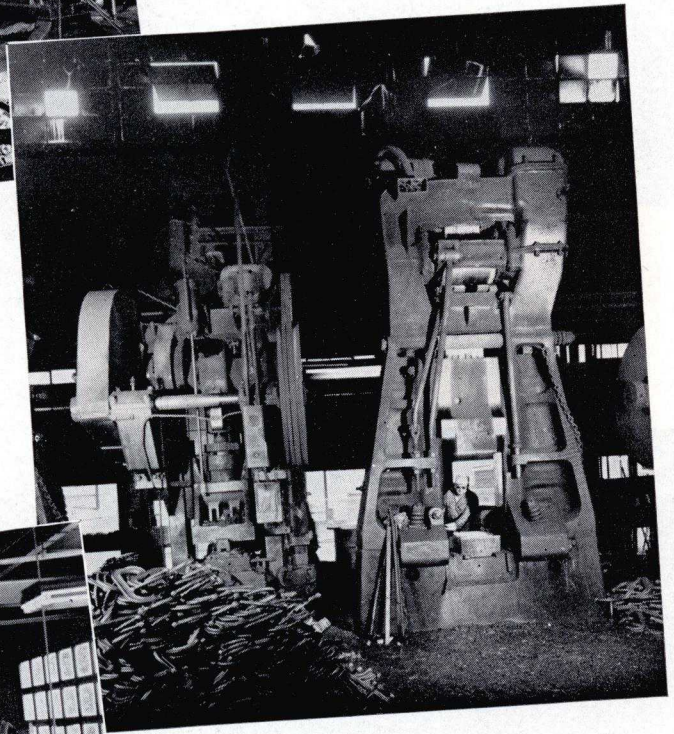
The Trade Mark of Quality

*All the machinery and equipment in our plant is used exclusively in the production of
ARMSTRONG tools.*



Drop Forge Hammers—
from foreground to distant end
of building

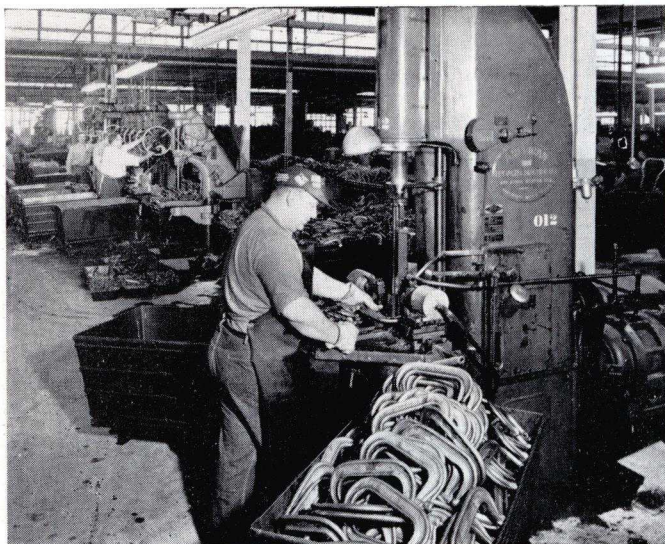
One of a number of forging units
in our forge shop



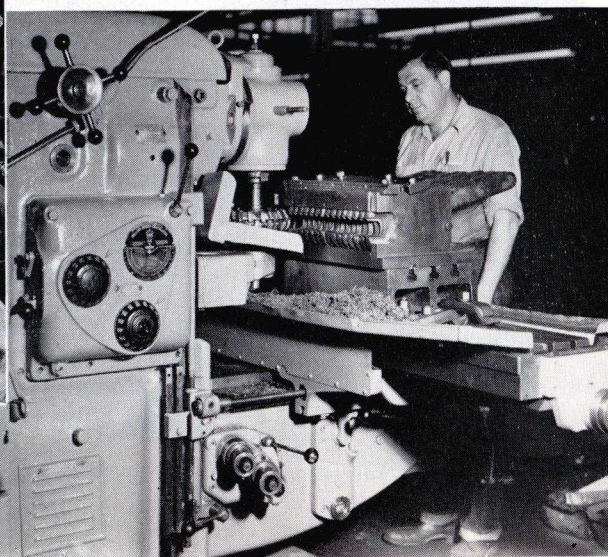
Automatic Screw machine department

*Only one brand, **ARMSTRONG**, is produced in our plant*

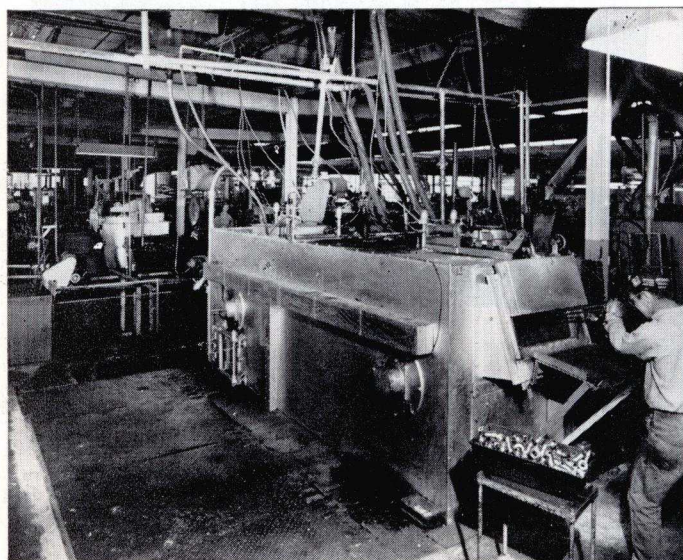
*All the machinery and equipment in our plant is used exclusively in the production of
ARMSTRONG tools.*



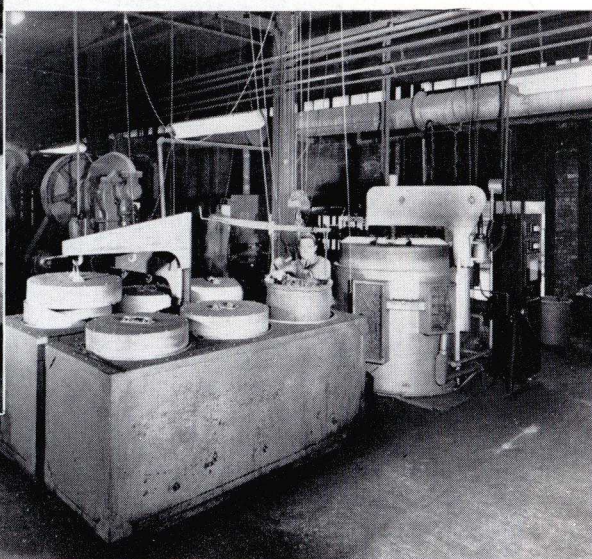
Broaching anvils of "C" Clamps



Gang Milling openings of
Engineers' Wrenches



One of our electric annealing and
normalizing furnaces

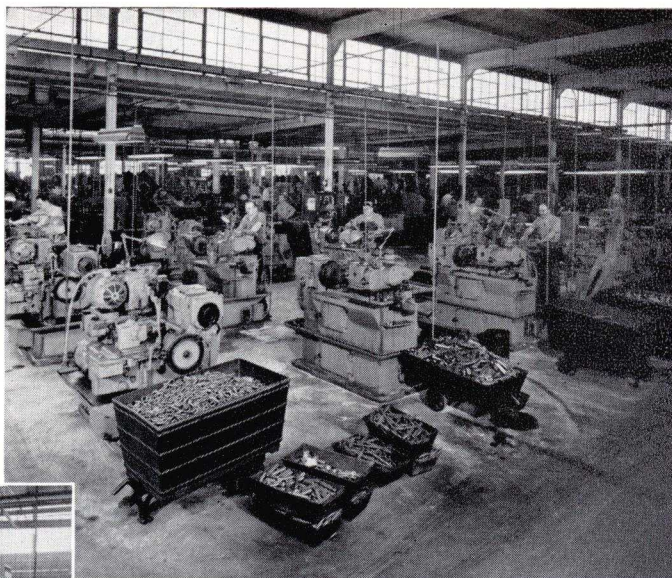


Atmospheric controlled electric furnaces
of the finest type
assure proper heat treatment

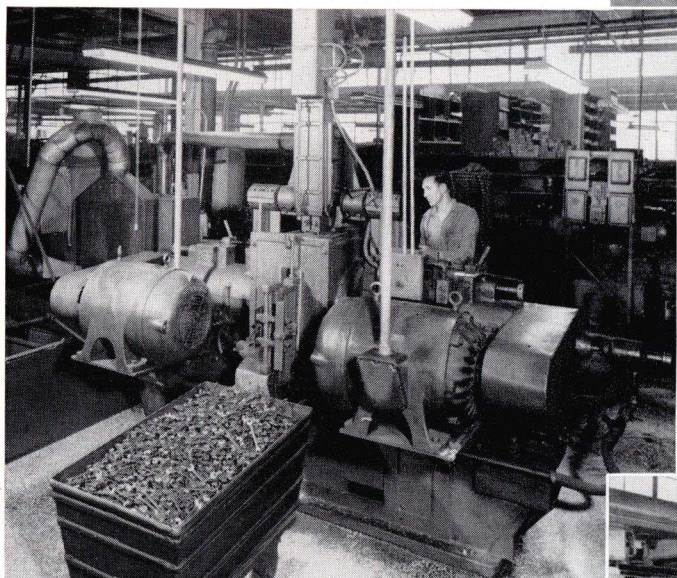
*Only one brand, **ARMSTRONG**, is produced in our plant*

*All the machinery and equipment in our plant is used exclusively in the production of
ARMSTRONG tools.*

View of machining departments



Automatic grinding of heads
of open end wrenches



A large inventory of finished tools
enables us to make prompt deliveries
on catalog stock tools



*Only one brand, **ARMSTRONG**, is produced in our plant*

ALPHABETICAL INDEX

Adapters , Socket Wrench	96	Fittings , Tool Post	27
Adjustable Wrenches	104	Flange Links, Chain Tongs	118
Adjustable Wrenches, Spanner	64, 65	Flare Nut Wrenches	71
Alligator Type Wrenches	63	Flaring Tools, Tube	120
Balance Handles	46	Hammers , Ball Pein	104
Bars , Boring	13-15, 25	Handles , Balance	46
Shaper Tool	20	Crank	46
Steel, High Speed	31	Handles , Machine	46
Bits , Screwdriver, Socket Wrench	96	Hoist Hooks	43
Tool	15, 25, 28-33	Holders , Cutter, Turret Lathe	22, 23
Blades , Cut-off	29-31	Drill	22, 37
Side Tool	30	Grinding	37
Blocks , Step	36	Holders , Tool Boring	10-13, 25
Boiler Ratchets	45	C-A	4, 5
Bolt Stocks and Dies	106, 107, 108, 110	Carbide	3, 5
Bolts , Eye	42	Carbide Insert	7
T Slot	34	Cutter	22, 23
Boring Bars	13-15, 25	Cutting-Off	8, 24
Tools and Tool Holders	10-13, 25	Drill	22
Box Wrenches	55, 60-62, 68, 72-75	Drop Head	6
Box and Open End Wrenches	70	Facing	23
Bracing Jacks	36	Knurling	18, 23, 26
Breakers , Chip, Tool Holder	6	Lathe	2-26
Bridge Wrenches	98	Planer	20, 21
Bushings , Bar, Shaper Tool	20	Screw Machine	22, 23
Boring Tool	11	Shaper	20, 26
		Side	9
C Clamps	40, 41	Slotter	21
Extra Deep Throat	40	Threading	16, 17, 26
Heavy Duty	40	Turning	2-26
Medium Service	40	Hollow Screw Wrenches	97
Spatter Resisting	41	Hook Spanners	65
Tool Makers	41	Hooks , Hoist	43
Welders	41		
C-A Tool Holders	4, 5	Ignition Pliers	104
Tool Sets	5	Industrial Sockets	100-103
Car Pattern Wrenches	63	Inserts , Carbide, Tool Holder	6
Carbide Insert Tool Holders	7		
Inserts, Tool Holder	6	Jacks , Bracing	36
Tipped Cutters	32, 33	Planer	36
Tool Holders	3, 5	Vertical	36
Chain Pipe Vises	115		
Tongs	118, 119	Knurling Tools	18, 23, 26
Chasers , Thread	113	Knurls	18, 26
Chip Breakers, Tool Holder	6		
Clamps	34, 35, 41	Lathe Dogs	26, 38, 39
Machinists'	41	Lathe Tool Bits	15, 25, 28-33
Parallel Jaw	41	Lathe Tool Holders	2-26
Strap	35	Lathe Tool Posts	27
T Slot	34	Lathe Tool Sets	5, 19, 24
Construction Wrenches	57	Lathe Tools, Turret	2-33
Crank Handles	46		
Crowfoot Wrenches	80	Machine Handles	46
Cut-Off Blades	29-31	Strap Clamps	35
Cutter Wheels, Pipe	117	Machinists' Clamps	41
Cutters , Carbide Tipped	32, 33	Hammers	104
Pipe	116	Milling Machine Dogs	38
Threading, Tool	17, 26	Miniature Wrenches	53
Tube	120		
Cutting Tools	2-33	Nuts , T Slot	34
Cutting-Off Tools	8, 24		
		Packer Ratchet Drills	44
Die Stocks	106, 107	Parallel Clamps	41
Dies , Bolt	106, 107	Parts , Drive, Socket Wrench	78, 79, 81-97
Pipe	105, 107	Pin Spanners	64
Dies and Stocks—Sets	108-113	Pins , Retainer, Socket Wrench	102
Dogs , Lathe	26, 38, 39	Pipe Cutter Wheels	117
Milling Machine	38	Cutters	116
Drill Drifts	37	Dies	105, 107
Drill Holders	22	Reamers	117
Vises	38	Stocks	106, 107
Drilling Posts	45	Stocks and Dies	108-113
Drills , Ratchet	44, 45	Threaders	108-113
Drive Parts, Socket Wrench	78, 79, 81-97	Tongs	118, 119
		Tools	105-120
End Caps, Boring Tool	11	Vise Saddles	115
Engineers' Wrenches, Open End	48-52	Vise Stands	114
Extensions , Socket Wrench	78-97, 100-103	Vises	114, 115
Eye Bolts	42	Wrenches	118, 119
		Planer Jacks	36
Face Spanners	64	Tools	20, 21
Facing Tools, Turret Lathe	23	Pliers , Slip-Joint	104

ALPHABETICAL INDEX

Post Fittings, Tool	27
Rings, Tool.....	27
Wedges, Tool.....	27
Wrenches, Tool.....	69
Posts, Drilling	45
Lathe Tool.....	27
Power Sockets	100-103
Ratchet Drills	44, 45
Pipe Reamers.....	117
Stocks.....	109-112
Wrenches.....	78-98
Ratchets, Bridge	98
Reamers, Pipe	117
Retainer Pins, Socket Wrench	102
Rings, O, Socket Wrench	102
Tool Post.....	27
Saddles, Pipe Vise	115
Screw Machine Tools	22, 23
Screwdriver Bits, Socket Wrench	96
Set Screw Wrenches	68, 69
Sets, Boring Bar	15, 25
Lathe Tool.....	5, 19, 24
Sets, Wrench, Bridge	98
Combination Open End and Box.....	70
Engineers', Open End.....	52
Hollow Screw.....	97
Miniature.....	53
Socket, Box.....	74, 90
Socket, Detachable.....	79, 82, 83, 86-90
Spanner.....	65
Tappet.....	59
Set-Up Tools	34-36
Wedges.....	35
Shaper Tools	20, 26
Side Tool Blades	30
Tools.....	9
Slip-Joint Pliers	104
Slotter Tools	21
Socket Wrenches, Box	72-75, 90
Wrenches, Detachable.....	78-103
Wrenches, Drop Forged.....	66, 67
Spanner Wrenches	64, 65
Speeders, Socket Wrench	81, 82, 85-90
Stands, Vise, Pipe	114
Step Blocks	36
Steel, High Speed—3 Ft. Bars	31
Stock Boards, Wrench	99
Stocks, Die, Pipe and Bolt	106, 107
Strap Clamps	35
Striking Face Box Wrenches	62
Structural Wrenches	55, 56
T Slot Bolts	34
Slot Clamps.....	34
Slot Nuts.....	34
Slot Washers.....	34
Tappet Wrenches	58, 59
Thin Pattern Wrenches	54, 55
Threaders, Bolt and Pipe	108-113
Threading Cutters	33
Cutters, Tool.....	17, 26
Dies, Pipe and Bolt.....	105-107
Tools.....	16, 17, 26
Tongs, Chain	118, 119
Tool Bits	15, 25, 28-33
Post Fittings.....	27
Post Rings.....	27
Post Wedges.....	27
Post Wrenches.....	69
Sets, Lathe.....	5, 19, 24
Tool Holders Boring	10-13, 25
C-A.....	4, 5
Carbide.....	3, 5
Carbide Insert.....	7
Cutting-Off.....	8, 24
Drill.....	22
Drop Head.....	6
Facing.....	23
Knurling.....	18, 23, 26
Lathe.....	2-26
Planer.....	20, 21
Screw Machine.....	22, 23

Tool Holders—Continued

Shaper.....	20, 26
Side.....	9
Slotter.....	21
Threading.....	16, 17, 26
Turning.....	2-26
Turret Lathe.....	7
Toolmakers' Clamps	40, 41
Tools, Boring	10-13, 25
Cutting-Off.....	8, 24
Facing.....	23
Flaring, Tube.....	120
Knurling.....	18, 23, 26
Lathe.....	2-33
Planer.....	20, 21
Screw Machine.....	22, 23
Shaper.....	20, 26
Side.....	9
Slotter.....	21
Threading.....	16, 17, 26
Turning, Lathe.....	2-26
Turret.....	2-33
Torque Wrenches	91
Tube Cutters	120
Flaring Tools.....	120
Turning Cutters, Carbide Tipped	32
Tool Holders.....	2-26
Vise Stands, Pipe	114
Vise, Drill	38
Vises, Pipe	
Bench.....	114
Chain.....	115
Open Side.....	114
Hinged.....	114
Washers, T Slot	34
Wedges, Set-Up	35
Tool Post.....	27
Wheels, Pipe Cutter	117
Wrench Sets	
Bridge.....	98
Combination Open End and Box.....	70
Engineers', Open End.....	52
Hollow Screw.....	97
Miniature.....	53
Open End and Box.....	70
Socket, Box.....	74, 90
Socket, Detachable.....	79, 82, 83, 86-90
Spanner.....	65
Tappet.....	59
Wrenches, Adjustable	104
Adjustable Spanner.....	64, 65
Alligator Type.....	63
Box.....	55, 60-62, 68, 72-75
Bridge.....	98
Cap-Screw.....	68
Car Pattern.....	63
Combination Open End and Box.....	70
Combination Open End and Flare Nut.....	71
Construction.....	57
Engineers', Open End.....	48-52
Engineers', Socket.....	83, 87, 89, 90
Extra Long Pattern.....	63
Flare Nut.....	71
Hollow Screw.....	97
Miniature.....	53
Open End.....	48-59, 63, 68-71
Open End and Box.....	70
Open End and Flare Nut.....	71
Pipe.....	118, 119
Ratchet.....	78-98
Set-Screw.....	68, 69
Socket, Box.....	72-75, 90
Socket, Detachable.....	78-103
Socket, Offset Handle.....	67
Socket, Pin Handle.....	66
Spanner.....	64, 65
Structural.....	55, 56
Stub End.....	75
Tappet.....	58, 59
Tool Post.....	69
Thin Pattern.....	54, 55
Torque.....	91

GRAND PRIZE WINNERS

ARMSTRONG Tools have won highest honors at every great exposition entered, from the Universal Exposition at Paris in 1900 to the present day—thus confirming the favorable judgment of practical machinists based upon many years satisfactory service.



Universal Exposition
Paris, 1900
Two Bronze Medals
Highest Award



World's Fair
St. Louis, 1904
Gold Medal
Highest Award



Universal Exposition
Liege, 1905
Bronze Medal
Highest Award



GRAND PRIZE—MEDAL OF HONOR

Panama-Pacific International
Exposition, San Francisco
1915
The Two Highest Awards
Conferred



Franklin Institute
Medal of Merit

TRADE



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REG. IN U. S. PAT. OFFICE

OTHER TRADEMARKS REG. IN U. S. PAT. OFFICE

ARMSTRONG

ARMALLOY

ARMIDE

HI-TEN

ARMSTRONG BROS.

THE ARMSTRONG SYSTEM OF TOOL HOLDERS

A Complete, Economical and Efficient System of Lathe, Planer and Shaper Tools

The ARMSTRONG Tool Holder System

The "ARMSTRONG" Tool Holder System provides superior tools for every operation on Lathes, Planers and Shapers, most operations on Turret Lathes and Screw Machines as well as tools adaptable for use on Boring Mills and other Machine Tools.

The ARMSTRONG Design Principle

All ARMSTRONG Tool Holders incorporate the basic ARMSTRONG principle of permanent shanks or tool holders which hold inserted tool bits or cutters made of high speed steel, carbide, cast alloy or any other cutting material.

Ends Tooling-up Delays

Today in modern machine shops men and machines do not stand idle waiting while the old time "tool dresser" forges out a cumbersome single purpose tool for each operation. The "tool dresser" has been made ancient history by the ARMSTRONG Tool Holder System. Today each turning machine operator either draws the proper ARMSTRONG Tool Holder and tool bit from the shop tool crib or quickly grinds his own tool bits for use in the ARMSTRONG Tool Holders that are standard equipment on the turning machine he operates.

With ARMSTRONG Tool Holders setting-up is reduced to choosing the tool bit, cutter, or blade, inserting it in the tool holder, adjusting for height and clearance, tightening the bit or blade fastener, pulling down on the tool post screw and the operator is ready to start cutting.

Reduced Inventory of High Speed Steel, Carbides etc.

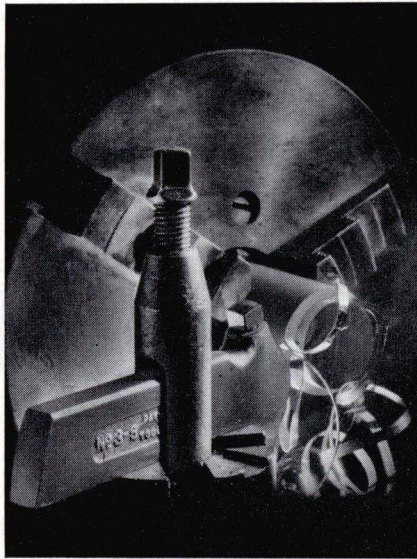
Where previously large stocks of expensive high speed steel, cast alloy bars, solid bar tools and even carbide tipped tools were required, now the work can be done with cutter bits and blades that weigh but a few ounces as compared to pounds in solid tools.

A Correct Tool Holder for Each Operation

There is a correct ARMSTRONG Tool Holder designed for every needed operation—a tool holder designed to give the proper approach to the work, greater strength, the maximum clearance, to hold the cutter at the correct cutting angle . . . to be in every way the most efficient tool that can be made for the specific operation. True efficiency is best obtained by using the correct ARMSTRONG Tool Holder for each operation.

Higher Speeds and Heavier Feeds

Cutting speeds generally accepted as "standard" are no measure of modern machine tools or tool holder capacities. With the recent improvements



in cutting agents and the use of modern ARMSTRONG Tool Holders, safe speeds and feeds are usually limited only by the power and the speed of the machine tool itself. A study in proper use of tool holders and cutting speeds will often reveal ways to greatly increase the output of your present turning machines.

Most Efficient Tools Available, Most Economical

Designed with a full knowledge of machine tool requirements gained from over sixty years of specialization in the design, manufacture and sale of ARMSTRONG Tool Holders . . . embodying the refinements in material and design developed

through long and continuous research and test, and the experience gained through world wide use, ARMSTRONG Tool Holders are the most efficient tools obtainable.

They are produced by modern manufacturing methods in one of the finest modern plants in the country. Their strength, uniformity and accuracy of form give them inherent qualities we believe impossible to achieve in individually made forged or solid bar tools.

Governs the Efficiency of the Machine Tool

The actual work of any cutting machine tool is done by its cutting point. And, no cutting machine tool can be more efficient than its cutter and the tool holder that holds it.

With the cost of any ARMSTRONG Tool Holder so insignificant when compared to the high cost of machine tools and man hours, whose efficiency it governs, it is sound shop practice to always fully equip every machine tool in your shop with ARMSTRONG Tool Holders.

New ARMSTRONG Tool Holders

While over 96% of the machine shops and tool rooms in the U.S.A. use ARMSTRONG Tool Holders, many do not use the correct tool holders for all operations. This is due in part to habit and to lack of familiarity with the newer ARMSTRONG Tool Holders recently developed to meet modern machining conditions and materials.

It is good shop practice, therefore, to periodically check your tool holder and tooling equipment against an up to the minute ARMSTRONG Catalog to be sure that your tooling methods are keeping up with the developments in the field.

Where to buy ARMSTRONG Tool Holders

ARMSTRONG Tool Holders and tools are carried in stock by all leading Industrial Supply Distributors. If your local Supply House can not fill your needs we ask you to contact us direct and we will have one of our own sales engineers contact you at the first opportunity.



ARMSTRONG TURNING TOOL HOLDERS

ARMSTRONG Turning Tool Holders are drop forged from a special steel and are accurately machined, heat treated and hardened. The set screws are made of heat treated alloy steel with hardened point.

Straight Shank



Each tool is boxed separately and includes wrench and one ARMSTRONG High Speed tool bit.

No.	Size of Holder Inches	Size of Tool Bit Square, Inches	For Lathes *Approximate Swing Inches (Inclusive)	Nominal Height from Bottom of Shank to Tool Bit Point, Inches	Approx. Weight Lb.
000-S	$\frac{5}{16} \times \frac{1}{2} \times 4$	$\frac{3}{16}$	6 to 7	$\frac{1}{2}$	.50
00-S	$\frac{5}{16} \times \frac{3}{4} \times 4\frac{1}{2}$	$\frac{3}{16}$	7 to 10	$\frac{11}{16}$	.50
0-S	$\frac{3}{8} \times \frac{7}{8} \times 5$	$\frac{1}{4}$	10 to 12	$\frac{13}{16}$	.75
1-S	$\frac{1}{2} \times 1\frac{1}{8} \times 6$	$\frac{5}{16}$	14 to 16	$\frac{11}{16}$	1.50
2-S	$\frac{5}{8} \times 1\frac{3}{8} \times 7$	$\frac{3}{8}$	16 to 18	$\frac{11}{4}$	2.25
3-S	$\frac{3}{4} \times 1\frac{5}{8} \times 8$	$\frac{7}{16}$	18 to 20	$1\frac{15}{32}$	3.50
4-S	$\frac{7}{8} \times 1\frac{3}{4} \times 9$	$\frac{1}{2}$	24 to 36	$1\frac{21}{32}$	4.75
5-S	1 x 2 x 11	$\frac{5}{8}$	.....	2	7.50
6-S	$1\frac{1}{4} \times 2\frac{1}{4} \times 13$	$\frac{3}{4}$	.....	$2\frac{7}{16}$	12.00
7-S	$1\frac{1}{2} \times 2\frac{1}{2} \times 16$	$\frac{7}{8}$	.....	$2\frac{13}{16}$	19.00
750-S	$1\frac{5}{8} \times 2\frac{3}{4} \times 18$	1	.....	$3\frac{1}{8}$	26.00
800-S	$1\frac{3}{4} \times 3 \times 20$	$1\frac{1}{8}$	.....	$3\frac{3}{8}$	32.00

Offset



Left-Hand Offset



Right-Hand Offset

Each tool is boxed separately and includes wrench and one ARMSTRONG High Speed tool bit.

†Left-Hand Offset No.	‡Right-Hand Offset No.	Size of Holder Inches	Size of Tool Bit Square, Inches	For Lathes *Approximate Swing Inches (Inclusive)	Nominal Height from Bottom of Shank to Tool Bit Point, Inches	Approx. Weight Lb.
000-L	000-R	$\frac{5}{16} \times \frac{1}{2} \times 4$	$\frac{3}{16}$	6 to 7	$\frac{1}{2}$	.50
00-L	00-R	$\frac{5}{16} \times \frac{3}{4} \times 4\frac{1}{2}$	$\frac{3}{16}$	7 to 10	$\frac{11}{16}$	.50
0-L	0-R	$\frac{3}{8} \times \frac{7}{8} \times 5$	$\frac{1}{4}$	10 to 12	$\frac{13}{16}$	.75
1-L	1-R	$\frac{1}{2} \times 1\frac{1}{8} \times 6$	$\frac{5}{16}$	14 to 16	$\frac{11}{16}$	1.50
2-L	2-R	$\frac{5}{8} \times 1\frac{3}{8} \times 7$	$\frac{3}{8}$	16 to 18	$\frac{11}{4}$	2.25
3-L	3-R	$\frac{3}{4} \times 1\frac{5}{8} \times 8$	$\frac{7}{16}$	18 to 20	$1\frac{15}{32}$	3.50
4-L	4-R	$\frac{7}{8} \times 1\frac{3}{4} \times 9$	$\frac{1}{2}$	24 to 36	$1\frac{21}{32}$	4.75
5-L	5-R	1 x 2 x 11	$\frac{5}{8}$	.....	2	7.50
6-L	6-R	$1\frac{1}{4} \times 2\frac{1}{4} \times 13$	$\frac{3}{4}$	.....	$2\frac{7}{16}$	12.00
7-L	7-R	$1\frac{1}{2} \times 2\frac{1}{2} \times 16$	$\frac{7}{8}$	.....	$2\frac{13}{16}$	19.00
750-L	750-R	$1\frac{5}{8} \times 2\frac{3}{4} \times 18$	1	.....	$3\frac{1}{8}$	26.00
800-L	800-R	$1\frac{3}{4} \times 3 \times 20$	$1\frac{1}{8}$	.....	$3\frac{3}{8}$	32.00

*As there is a wide variation in the proportions of lathes of different manufacture, it is only possible to give approximate size or swing of lathes adapted to the use of ARMSTRONG Tool Holders of different sizes. Tool posts should be carefully measured before ordering tools.

†Left-Hand Tools offset to the right. ‡Right-Hand Tools offset to the left.

For best results, use ARMSTRONG High Speed Tool Bits—see page 30.



ARMSTRONG CARBIDE TOOL HOLDERS

For Carbide Tipped Cutters

In ARMSTRONG Carbide Tool Holders, the cutter is held parallel to the shank of the holder which permits grinding the cutter so as to give maximum support to the cutting edge. This feature, together with the great rigidity of ARMSTRONG Tool Holders, is recognized by Carbide Engineers as a prerequisite to the successful application of Carbide Cutters. In addition to its primary use with Carbide-Tipped Cutters, this Tool Holder is widely used as a planer and shaper tool.

Straight Shank



Offset



Left-Hand Offset



Right-Hand Offset

Each tool is drop forged from a special steel and is accurately machined, heat treated and hardened. The set screws are made of treated alloy steel with hardened point. Furnished with hole broached for either square or heavy duty cutters.

Each tool is boxed separately and is furnished *without* tool bit. Wrench is included.

For Square Cutters

Straight Shank No.	†Left-Hand Offset No.	‡Right-Hand Offset No.	Size of Holder Inches	Size of Cutter Square Inches	For Lathes *Approximate Swing, Inches (Inclusive)	Nominal Height from Bottom of Shank to Cutter Point, Inches	Approx. Weight Lb.
T-0-S	T-0-L	T-0-R	$\frac{3}{8} \times \frac{15}{16} \times 6$	$\frac{1}{4}$	9 to 10	$\frac{11}{16}$	1.25
T-1-S	T-1-L	T-1-R	$\frac{1}{2} \times 1\frac{1}{4} \times 7$	$\frac{5}{16}$	11 to 14	$\frac{7}{8}$	2.00
T-2-S	T-2-L	T-2-R	$\frac{5}{8} \times 1\frac{1}{2} \times 8$	$\frac{3}{8}$	14 to 16	1	3.25
T-3-S	T-3-L	T-3-R	$\frac{3}{4} \times 1\frac{3}{4} \times 9$	$\frac{7}{16}$	16	$1\frac{1}{8}$	5.00
T-4-S	T-4-L	T-4-R	$\frac{7}{8} \times 1\frac{7}{8} \times 10$	$\frac{1}{2}$	18	$1\frac{1}{4}$	7.00
T-5-S	T-5-L	T-5-R	$1 \times 2\frac{1}{8} \times 12$	$\frac{5}{8}$	20 to 24	$1\frac{3}{8}$	10.50
T-6-S	T-6-L	T-6-R	$1\frac{1}{4} \times 2\frac{1}{4} \times 13$	$\frac{3}{4}$	.....	$1\frac{1}{2}$	11.38
T-7-S	T-7-L	T-7-R	$1\frac{1}{2} \times 2\frac{1}{2} \times 16$	$\frac{7}{8}$	.....	$1\frac{3}{4}$	19.50
T-750-S	T-750-L	T-750-R	$1\frac{5}{8} \times 2\frac{3}{4} \times 18$	1	.....	$1\frac{7}{8}$	25.88
T-800-S	T-800-L	T-800-R	$1\frac{3}{4} \times 3 \times 20$	$1\frac{1}{8}$	.....	2	31.50

For Heavy Duty Cutters

Straight Shank No.	†Left-Hand Offset No.	‡Right-Hand Offset No.	Size of Holder Inches	Size of Cutter Inches	For Lathes *Approximate Swing, Inches (Inclusive)	Nominal Height from Bottom of Shank to Cutter Point, Inches	Approx. Weight Lb.
FT-0-S	FT-0-L	FT-0-R	$\frac{3}{8} \times \frac{15}{16} \times 6$	$\frac{1}{4} \times \frac{3}{8}$	9 to 10	$\frac{11}{16}$	1.25
FT-1-S	FT-1-L	FT-1-R	$\frac{1}{2} \times 1\frac{1}{4} \times 7$	$\frac{5}{16} \times \frac{7}{16}$	11 to 14	$\frac{7}{8}$	2.00
FT-2-S	FT-2-L	FT-2-R	$\frac{5}{8} \times 1\frac{1}{2} \times 8$	$\frac{3}{8} \times \frac{1}{2}$	14 to 16	1	3.25
FT-3-S	FT-3-L	FT-3-R	$\frac{3}{4} \times 1\frac{3}{4} \times 9$	$\frac{7}{16} \times \frac{9}{16}$	16	$1\frac{1}{8}$	5.00
FT-4-S	FT-4-L	FT-4-R	$\frac{7}{8} \times 1\frac{7}{8} \times 10$	$\frac{1}{2} \times \frac{3}{4}$	18	$1\frac{1}{4}$	7.00
FT-5-S	FT-5-L	FT-5-R	$1 \times 2\frac{1}{8} \times 12$	$\frac{5}{8} \times \frac{7}{8}$	20 to 24	$1\frac{3}{8}$	10.50

*As there is a wide variation in the proportions of lathes of different manufacture, it is only possible to give approximate size or swing of lathes adapted to the use of ARMSTRONG Tool Holders of different sizes. Tool posts should be carefully measured before ordering tools.

†Left-Hand Tools offset to the right.

‡Right-Hand Tools offset to the left.

For best results, use ARMIDE Carbide Tipped Cutters—see pages 32 and 33



ARMSTRONG "C-A" TOOL HOLDERS

For Cast Alloy Tool Bits

In ARMSTRONG "C-A" Tool Holders the tool bit is held parallel to the shank of the holder which permits grinding to the correct rake and clearance and affords maximum support to the cutting edge.

The set screw pressure is distributed over a large area by means of a heavy tool steel gib movably set between tool bit and screw point. This feature is combined with the usual ARMSTRONG qualities of great strength and compactness.

Each tool drop forged from a special steel, accurately machined, heat treated and hardened. The set screws are made of treated alloy steel with hardened point.

Straight Shank



Each tool is boxed separately and is furnished *without* tool bit. Wrench is included.

No.	Size of Holder Inches	Size of Tool Bit Square, Inches	Length of Tool Bit Inches	For Lathes *Approximate Swing Inches (Inclusive)	Nominal Height from Bottom of Shank to Tool Bit Point, Inches	Approx. Weight Lb.
XX-0-S	$\frac{3}{8} \times \frac{15}{16} \times 5\frac{1}{2}$	$\frac{1}{4}$	$2\frac{1}{8}$	9 to 10	$\frac{11}{16}$	1.25
XX-1-S	$\frac{1}{2} \times 1\frac{1}{4} \times 7$	$\frac{5}{16}$	$2\frac{1}{2}$	11 to 14	$\frac{7}{8}$	1.75
XX-2-S	$\frac{5}{8} \times 1\frac{1}{2} \times 7\frac{7}{8}$	$\frac{3}{8}$	3	14 to 16	1	3.00
XX-3-S	$\frac{3}{4} \times 1\frac{3}{4} \times 8\frac{7}{8}$	$\frac{7}{16}$	$3\frac{1}{2}$	16	$1\frac{1}{8}$	4.50
XX-4-S	$\frac{7}{8} \times 1\frac{7}{8} \times 9\frac{7}{8}$	$\frac{1}{2}$	4	18	$1\frac{1}{4}$	6.50
XX-5-S	$1 \times 2\frac{1}{8} \times 11\frac{3}{4}$	$\frac{5}{8}$	$4\frac{1}{2}$	20 to 24	$1\frac{3}{8}$	10.00

Offset



Left-Hand Offset



Right-Hand Offset

Each tool is boxed separately and is furnished *without* tool bit. Wrench is included.

†Left-Hand Offset No.	‡Right-Hand Offset No.	Size of Holder Inches	Size of Tool Bit Square, Inches	Length of Tool Bit Inches	For Lathes *Approximate Swing Inches (Inclusive)	Nominal Height from Bottom of Shank to Tool Bit Point, Inches	Approx. Weight Lb.
XX-0-L	XX-0-R	$\frac{3}{8} \times \frac{15}{16} \times 5\frac{1}{2}$	$\frac{1}{4}$	$2\frac{1}{8}$	9 to 10	$\frac{11}{16}$	1.25
XX-1-L	XX-1-R	$\frac{1}{2} \times 1\frac{1}{4} \times 7$	$\frac{5}{16}$	$2\frac{1}{2}$	11 to 14	$\frac{7}{8}$	1.75
XX-2-L	XX-2-R	$\frac{5}{8} \times 1\frac{1}{2} \times 7\frac{7}{8}$	$\frac{3}{8}$	3	14 to 16	1	3.00
XX-3-L	XX-3-R	$\frac{3}{4} \times 1\frac{3}{4} \times 8\frac{7}{8}$	$\frac{7}{16}$	$3\frac{1}{2}$	16	$1\frac{1}{8}$	4.50
XX-4-L	XX-4-R	$\frac{7}{8} \times 1\frac{7}{8} \times 9\frac{7}{8}$	$\frac{1}{2}$	4	18	$1\frac{1}{4}$	6.50
XX-5-L	XX-5-R	$1 \times 2\frac{1}{8} \times 11\frac{3}{4}$	$\frac{5}{8}$	$4\frac{1}{2}$	20 to 24	$1\frac{3}{8}$	10.00

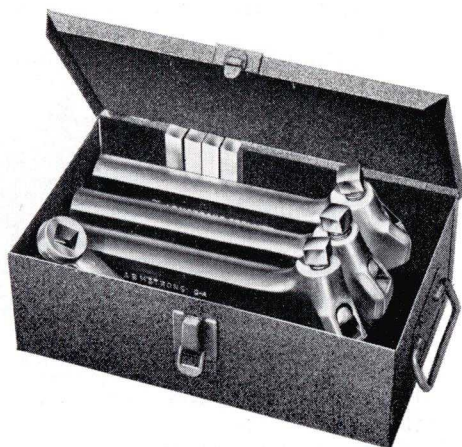
*As there is a wide variation in the proportions of lathes of different manufacture, it is only possible to give approximate size or swing of lathes adapted to the use of ARMSTRONG Tool Holders of different sizes. Tool posts should be carefully measured before ordering tools.

†Left-Hand Tools offset to the right. ‡Right-Hand Tools offset to the left.

For best results, use ARMALLOY Tool Bits—see page 31.



ARMSTRONG "C-A" TOOL SETS



ARMSTRONG "C-A" Sets are available in five sizes. Each set consists of one straight shank, one right-hand and one left-hand offset ARMSTRONG "C-A" Tool Holder, and four ARMALLOY tool bits.

Set is furnished with one wrench and steel case.

No.	Size of Holder Inches	Size of Tool Bit Square, In.	Approx. Weight Lb.
0466	$\frac{3}{8} \times \frac{15}{16} \times 5\frac{1}{2}$	$\frac{1}{4}$	3.5
0467	$\frac{1}{2} \times 1\frac{1}{4} \times 7$	$\frac{5}{16}$	6.5
0468	$\frac{5}{8} \times 1\frac{1}{2} \times 7\frac{7}{8}$	$\frac{3}{8}$	9.0
0469	$\frac{3}{4} \times 1\frac{3}{4} \times 8\frac{7}{8}$	$\frac{7}{16}$	13.5
0470	$\frac{7}{8} \times 1\frac{7}{8} \times 9\frac{7}{8}$	$\frac{1}{2}$	20.5

See page 4 for "C-A" Tool Holders, especially designed for use with ARMALLOY Tool Bits.

ARMSTRONG ARMIDE TOOL SETS

ARMSTRONG ARMIDE Tool Sets permit the advantages of carbide cutting tools for many operations without the excessive cost of special tools.



Each set consists of one straight shank, one right-hand and one left-hand offset ARMSTRONG Carbide Tool Holder; and eight ARMIDE Cutters—one each right-hand, left-hand, square nose and 80 degree ARMIDE grade 78 for cutting steel, and one each right-hand, left-hand, square nose and 80 degree ARMIDE grade 883 for cutting all other materials.

Each set is furnished complete with one wrench and steel case.

See page 3 for Carbide Tool Holders, especially designed for use with ARMIDE Cutters.

No.	Size of Holder Inches	Size of Cutter Square, In.	Approx. Weight Lb.
M-0A	$\frac{3}{8} \times \frac{15}{16} \times 6$	$\frac{1}{4}$	3.5
M-1A	$\frac{1}{2} \times 1\frac{1}{4} \times 7$	$\frac{5}{16}$	6.5
M-2A	$\frac{5}{8} \times 1\frac{1}{2} \times 8$	$\frac{3}{8}$	9.0
M-3A	$\frac{3}{4} \times 1\frac{3}{4} \times 9$	$\frac{7}{16}$	13.5
M-4A	$\frac{7}{8} \times 1\frac{7}{8} \times 10$	$\frac{1}{2}$	20.5

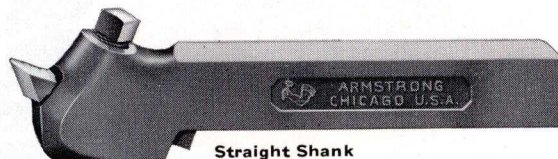


ARMSTRONG DROP-HEAD TOOL HOLDERS

ARMSTRONG Drop-Head Turning Tool Holders are designed especially for use on lathes of British and European make having a clamp tool rest, and American lathes of similar design with high slide rest or low centers. Head and screw are extra heavy; "goose-neck" shape of holder makes it an excellent shaper and planer tool.

Drop forged from special steel, accurately machined, heat treated and hardened. Set screws are made of treated alloy steel with hardened point.

Each tool is boxed separately and includes wrench and one ARMSTRONG High Speed tool bit.

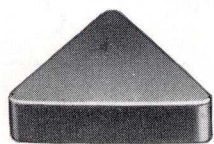


Straight Shank

Straight Shank No.	*Left-Hand Offset No.	†Right-Hand Offset No.	Size of Holder Inches	Size of Tool Bit Square Inches	Nom. Ht. from Bottom of Shank to Tool Bit Point, Inches	Approximate Weight Lb.
100-S	100-L	100-R	$\frac{1}{2} \times \frac{5}{8} \times 6$	$\frac{3}{16}$	$\frac{9}{16}$	.75
101-S	101-L	101-R	$\frac{5}{8} \times \frac{3}{4} \times 7\frac{1}{2}$	$\frac{1}{4}$	$\frac{11}{16}$	1.50
201-S	201-L	201-R	$\frac{3}{4} \times \frac{7}{8} \times 8\frac{1}{2}$	$\frac{5}{16}$	$\frac{13}{16}$	2.00
102-S	102-L	102-R	$\frac{7}{8} \times 1 \times 9\frac{1}{2}$	$\frac{3}{8}$	$\frac{15}{16}$	3.00
301-S	301-L	301-R	$1 \times 1\frac{1}{8} \times 10\frac{1}{2}$	$\frac{7}{16}$	$1\frac{1}{16}$	4.25
103-S	103-L	103-R	$1\frac{1}{8} \times 1\frac{1}{4} \times 11\frac{1}{2}$	$\frac{1}{2}$	$1\frac{3}{16}$	6.00
104-S	104-L	104-R	$1\frac{3}{8} \times 1\frac{1}{2} \times 13\frac{1}{2}$	$\frac{5}{8}$	$1\frac{5}{16}$	10.00
105-S	105-L	105-R	$1\frac{5}{8} \times 1\frac{3}{4} \times 15\frac{1}{2}$	$\frac{3}{4}$	$1\frac{1}{2}$	16.00
106-S	106-L	106-R	$1\frac{7}{8} \times 2 \times 17\frac{1}{2}$	$\frac{7}{8}$	$1\frac{3}{4}$	23.00
107-S	107-L	107-R	$2\frac{1}{8} \times 2\frac{1}{4} \times 19\frac{1}{2}$	1	2	31.00

*Left-Hand Tools offset to the right. †Right-Hand Tools offset to the left.

ARMSTRONG ARMIDE "THROW AWAY" CARBIDE INSERTS



Triangular Insert

ARMIDE Inserts for use in ARMSTRONG Carbide Insert Tool Holders are furnished in two finishes and three grades of carbide. Finishes available are:

Utility—with top, bottom and corner radii ground.

Precision—with all surfaces ground, including radii.

Carbide grades in which inserts are available:

Grade **350**: for light roughing and general finishing of steel.

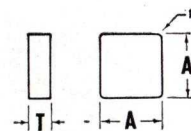
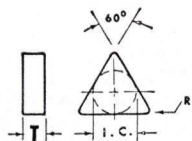
Grade **370**: for heavy roughing of steel.

Grade **883**: for general purpose roughing and finishing; for cast iron, brass, aluminum, mild steels.

When ordering inserts, please specify No., finish (Utility or Precision) and grade required. Packed 10 in a standard package.



Square Insert



Triangular				Triangular and Square Inserts Grades Stocked	Square					
Insert No.	INSERT DIMEN. INCHES				Insert No.	INSERT DIMEN. INCHES			For Tool Nos.	
	I.C.	T	R			A	T	R		
TB122U3 TB122P3	$\frac{3}{8}$	$\frac{1}{8}$	$\frac{3}{64}$	TR12, TL12, TR43, TL43	883, 350, 370	SQ162U2 SQ162P2	$\frac{1}{2}$	$\frac{1}{8}$	$\frac{1}{32}$	SR12, SL12, SR43, SL43
TB163U4 TB163P4	$\frac{1}{2}$	$\frac{3}{16}$	$\frac{1}{16}$	{ TR16, TL16, TR85, TL85, TR54, TL54, TR65, TL65, TR75, TL75	883, 350, 370	SQ243U4 SQ243P4	$\frac{3}{4}$	$\frac{3}{16}$	$\frac{1}{16}$	{ SR16, SL16, SR85, SL85, SR54, SL54, SR65, SL65, SR75, SL75

CHIP BREAKERS

Solid Carbide



Triangular	
No.	For Tool Holder Nos.
CTB12	TR12, TL12, TR43, TL43
CTB16	{ TR16, TL16, TR85, TL85, TR54, TL54, TR65, TL65, TR75, TL75



Square	
No.	For Tool Holder Nos.
CSQ16	SR12, SL12, SR43, SL43
CSQ24	{ SR16, SL16, SR85, SL85, SR54, SL54, SR65, SL65, SR75, SL75



ARMSTRONG ARMIDE CARBIDE INSERT TOOL HOLDERS

These tool holders are furnished in two styles:

Style T, for holding triangular inserts with cutting edge parallel to the shank.

Style S, for holding square inserts with cutting edge at 15° angle to the shank.

Inserts are held in the shank at 5° negative rake angles and are turned over so that cutting edges on both sides may be used. The shanks of these tools are made of selected alloy steel, carefully heat treated, accurately machined and finished in a natural steel finish.

The tool steel seats are ground and hardened to provide a flat base for inserts and minimize the possibility of damage to inserts as they are clamped in position. A relief groove ground into the seat provides clearance when a dulled insert with "built-up" edges is turned over.

ARMSTRONG ARMIDE CARBIDE INSERT TOOL HOLDERS

For Use in Conventional Tool Posts

Shanks are specifically designed to fit engine and tool room lathe tool posts.

Furnished in two styles, as described above. Both styles available in "Right Hand" and "Left Hand" and in four shank sizes.

Each tool is boxed separately and includes wrench but not *insert or chip breaker.



Tool Style TR
Opposite Hand—Style TL



Tool Style SR
Opposite Hand, Style SL

SIZE OF HOLDER, INCHES Wdth. Ht. Lgth.	Style T, Triangular						Style S, Square					
	No.		HOLDS INSERT SIZE DIMEN., INCHES			Holds Chip Breaker No.	No.		HOLDS INSERT SIZE DIMEN., INCHES			Holds Chip Breaker No.
	Style TR Right-Hand	Style TL Left-Hand	I.C.	T	R		Style SR Right-Hand	Style SL Left-Hand	A	T	R	
1/2 x 3/4 x 4 1/2	TR43	TL43	3/8	1/8	3/64	CTB12	SR43	SL43	1/2	1/8	1/32	CSQ16
5/8 x 1 x 6	TR54	TL54	1/2	3/16	1/16	CTB16	SR54	SL54	3/4	3/16	1/16	CSQ24
3/4 x 1 1/4 x 6	TR65	TL65	1/2	3/16	1/16	CTB16	SR65	SL65	3/4	3/16	1/16	CSQ24
7/8 x 1 1/4 x 6	TR75	TL75	1/2	3/16	1/16	CTB16	SR75	SL75	3/4	3/16	1/16	CSQ24

ARMSTRONG ARMIDE CARBIDE INSERT TOOL HOLDERS

For Use in Other Than Conventional Tool Posts

Furnished in two styles, as described above. Both styles available in "Right Hand" and "Left Hand" and in three shank sizes.

Each tool is boxed separately and includes wrench but not *insert or chip breaker.



Tool Style TR
Opposite Hand, Style TL



Tool Style SR
Opposite Hand—Style SL

Size Of HOLDER, INCHES Wdth. Ht. Lgth.	Style T, Triangular						Style S, Square					
	No.		HOLDS INSERT SIZE DIMEN., INCHES			Holds Chip Breaker No.	No.		HOLDS INSERT SIZE DIMEN., INCHES			Holds Chip Breaker No.
	Style TR Right-Hand	Style TL Left-Hand	I.C.	T	R		Style SR Right-Hand	Style SL Left-Hand	A	T	R	
3/4 x 3/4 x 4 1/2	TR12	TL12	3/8	1/8	3/64	CTB12	SR12	SL12	1/2	1/8	1/32	CSQ16
1 x 1 x 6	TR16	TL16	1/2	3/16	1/16	CTB16	SR16	SL16	3/4	3/16	1/16	CSQ24
1 x 1 1/4 x 6	TR85	TL85	1/2	3/16	1/16	CTB16	SR85	SL85	3/4	3/16	1/16	CSQ24

*Inserts and Chip Breakers are described on page 6—Order at the same time Tool Holder is ordered.



ARMSTRONG CUTTING-OFF TOOLS

The ARMSTRONG system is especially efficient and economical when applied to cutting-off in a lathe as the blade is adjustable to any desired clearance and the greatest support possible is obtainable under all conditions.

Straight Shank



Blades are beveled on both sides, held at an angle, giving side clearance and top rake needed to obtain a clean, smooth cut.

Drop forged from special steel, accurately machined, heat treated, hardened. Each tool boxed separately; includes wrench and one ARMSTRONG High Speed cut-off blade.

Left-Hand Offset



Right-Hand Offset

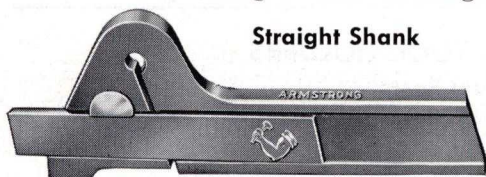


Straight Shank		Offset			Size of Cut-Off Blade Inches	For Lathes *Approximate Swing, Inches (Inclusive)	Nom. Height from Bottom of Shank to Blade Point, In.	Approx. Weight Lb.
No.	Size of Holder Inches	Left-Hand No.	Right-Hand No.	Size of Holder Inches				
19	$\frac{5}{16} \times \frac{3}{4} \times 4\frac{1}{2}$	29-L	29-R	$\frac{5}{16} \times \frac{3}{4} \times 4\frac{1}{2}$	$\frac{3}{32} \times \frac{1}{2}$	6 to 8	$\frac{5}{8}$	.63
20	$\frac{3}{8} \times \frac{7}{8} \times 5$	30-L	30-R	$\frac{3}{8} \times \frac{7}{8} \times 5$	$\frac{3}{32} \times \frac{5}{8}$	9 to 10	$\frac{3}{4}$	.75
21	$\frac{1}{2} \times 1\frac{1}{8} \times 6$	31-L	31-R	$\frac{1}{2} \times 1\frac{1}{8} \times 5\frac{7}{8}$	$\frac{1}{8} \times \frac{3}{4}$	11 to 14	$\frac{7}{8}$	1.25
22	$\frac{5}{8} \times 1\frac{3}{8} \times 7$	32-L	32-R	$\frac{5}{8} \times 1\frac{3}{8} \times 6\frac{7}{8}$	$\frac{1}{8} \times \frac{7}{8}$	14 to 16	$1\frac{1}{16}$	2.25
23	$\frac{3}{4} \times 1\frac{5}{8} \times 8$	33-L	33-R	$\frac{3}{4} \times 1\frac{5}{8} \times 7\frac{7}{8}$	$\frac{3}{16} \times 1$	16	$1\frac{1}{4}$	3.25
24	$\frac{7}{8} \times 1\frac{3}{4} \times 9$	34-L	34-R	$\frac{7}{8} \times 1\frac{3}{4} \times 8\frac{7}{8}$	$\frac{3}{16} \times 1\frac{1}{8}$	18	$1\frac{1}{2}$	4.50
25	1 x 2 x 10	35-L	35-R	1 x 2 x 9 $\frac{7}{8}$	$\frac{1}{4} \times 1\frac{1}{4}$	20 to 24	$1\frac{11}{16}$	6.50
26	$1\frac{1}{4} \times 2\frac{1}{4} \times 11$	36-L	36-R	$1\frac{1}{4} \times 2\frac{1}{4} \times 10\frac{7}{8}$	$\frac{1}{4} \times 1\frac{3}{8}$	30 to 36	$1\frac{13}{16}$	9.00

ARMSTRONG SPRING CUTTING-OFF TOOLS

Cutting off in a lathe, regarded as the hardest of lathe work, has been made comparatively simple by this tool. Its "goose neck" form gives the blade a resiliency that takes up any chatter and keeps the work from climbing up on tool—the cause of practically all cutting-off tool breakage. Cut-off blade adjustable to any desired clearance.

Straight Shank



Each tool is drop forged from special steel, accurately machined, heat treated, hardened, and boxed separately; includes wrench and one ARMSTRONG High Speed cut-off blade.

Blades are beveled on both sides, held at an angle, giving side clearance and top rake to obtain a clean, smooth cut.

Left-Hand Offset



Right-Hand Offset



Straight Shank		Offset			Size of Cut-Off Blade Inches	For Lathes *Approximate Swing, Inches (Inclusive)	Nom. Height from Bottom of Shank to Blade Point, In.	Approx. Weight Lb.
No.	Size of Holder Inches	Left-Hand No.	Right-Hand No.	Size of Holder Inches				
S-20	$\frac{3}{8} \times \frac{7}{8} \times 5\frac{1}{2}$	S-30-L	S-30-R	$\frac{3}{8} \times \frac{7}{8} \times 5\frac{1}{4}$	$\frac{3}{32} \times \frac{5}{8}$	9 to 10	$\frac{3}{4}$	.75
S-21	$\frac{1}{2} \times 1\frac{1}{8} \times 6\frac{5}{8}$	S-31-L	S-31-R	$\frac{1}{2} \times 1\frac{1}{8} \times 6\frac{1}{2}$	$\frac{1}{8} \times \frac{3}{4}$	11 to 14	$\frac{15}{16}$	1.50
S-22	$\frac{5}{8} \times 1\frac{3}{8} \times 7\frac{1}{2}$	S-32-L	S-32-R	$\frac{5}{8} \times 1\frac{3}{8} \times 7\frac{3}{4}$	$\frac{1}{8} \times \frac{7}{8}$	14 to 16	$1\frac{1}{16}$	2.25
S-23	$\frac{3}{4} \times 1\frac{5}{8} \times 8\frac{7}{8}$	S-32-L	S-33-R	$\frac{3}{4} \times 1\frac{5}{8} \times 8\frac{5}{8}$	$\frac{3}{16} \times 1$	16	$1\frac{1}{16}$	3.50

*As there is a wide variation in the proportion of lathes of different manufacture, it is only possible to give approximate size or swing of lathes adapted to the use of ARMSTRONG tools of different sizes. Tool posts should be carefully measured before ordering tools.

For best results, use ARMSTRONG High Speed Cut-Off Blades—see page 30



ARMSTRONG SIDE TOOLS

The ARMSTRONG Side Tool design is typical of the entire ARMSTRONG system of Tool Holders, embodying convenience, simplicity and strength. Drop forged from a special steel, accurately machined, heat treated and hardened.

Offset

Left-Hand Offset



Right-Hand Offset



Each tool boxed separately; includes wrench and one ARMSTRONG High Speed side tool blade.

Left-Hand Offset No.	Right-Hand Offset No.	Size of Holder Inches	Size of Side Tool Blade Inches	For Lathes *Approximate Swing Inches (Inclusive)	Nominal Height from Bottom of Shank to Blade Point Inches	Approx. Weight Lb.
69-L	69-R	$\frac{5}{16} \times \frac{3}{4} \times 4\frac{3}{8}$	$\frac{1}{8} \times \frac{1}{2}$	6 to 8	$\frac{9}{16}$	.63
70-L	70-R	$\frac{3}{8} \times \frac{7}{8} \times 4\frac{7}{8}$	$\frac{5}{32} \times \frac{5}{8}$	9 to 10	$\frac{1}{16}$	.75
71-L	71-R	$\frac{1}{2} \times 1\frac{1}{8} \times 5\frac{7}{8}$	$\frac{3}{16} \times \frac{3}{4}$	11 to 14	$\frac{15}{16}$	1.50
72-L	72-R	$\frac{5}{8} \times 1\frac{3}{8} \times 6\frac{7}{8}$	$\frac{1}{4} \times \frac{7}{8}$	14 to 16	$1\frac{1}{8}$	2.25
73-L	73-R	$\frac{3}{4} \times 1\frac{5}{8} \times 7\frac{7}{8}$	$\frac{5}{16} \times 1$	16	$1\frac{1}{4}$	3.50
74-L	74-R	$\frac{7}{8} \times 1\frac{3}{4} \times 8\frac{7}{8}$	$\frac{3}{8} \times 1\frac{1}{4}$	18	$1\frac{3}{8}$	6.00
75-L	75-R	1 x 2 x $9\frac{7}{8}$	$\frac{7}{16} \times 1\frac{3}{8}$	20 to 24	$1\frac{1}{2}$	8.50
76-L	76-R	$1\frac{1}{4} \times 2\frac{1}{4} \times 10\frac{7}{8}$	$\frac{1}{2} \times 1\frac{1}{2}$	30 to 36	$1\frac{3}{4}$	12.75

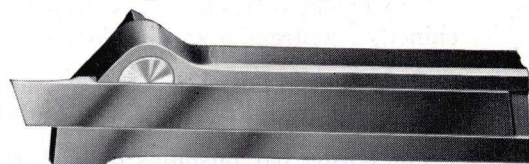
Straight Shank

In addition to their primary use on lathes, ARMSTRONG Straight Shank Side Tools are well adapted for Planer and Shaper work on which they will be found exceptionally convenient and efficient. Drop forged from a special steel, accurately machined, heat treated and hardened.

Left-Hand Straight Shank



Right-Hand Straight Shank



Each tool boxed separately; includes wrench and one ARMSTRONG High Speed side tool blade.

Left-Hand Straight Shank No.	Right-Hand Straight Shank No.	Size of Holder Inches	Size of Side Tool Blade Inches	For Lathes *Approximate Swing Inches (Inclusive)	Nominal Height from Bottom of Shank to Blade Point Inches	Approx. Weight Lb.
79-L	79-R	$\frac{5}{16} \times \frac{3}{4} \times 4\frac{1}{2}$	$\frac{1}{8} \times \frac{1}{2}$	6 to 8	$\frac{9}{16}$	.63
80-L	80-R	$\frac{3}{8} \times \frac{7}{8} \times 5$	$\frac{5}{32} \times \frac{5}{8}$	9 to 10	$\frac{1}{16}$	.75
81-L	81-R	$\frac{1}{2} \times 1\frac{1}{8} \times 6$	$\frac{3}{16} \times \frac{3}{4}$	11 to 14	$\frac{15}{16}$	1.25
82-L	82-R	$\frac{5}{8} \times 1\frac{3}{8} \times 7$	$\frac{1}{4} \times \frac{7}{8}$	14 to 16	$1\frac{1}{8}$	1.75
83-L	83-R	$\frac{3}{4} \times 1\frac{5}{8} \times 8$	$\frac{5}{16} \times 1$	16	$1\frac{1}{4}$	3.25
84-L	84-R	$\frac{7}{8} \times 1\frac{3}{4} \times 9$	$\frac{3}{8} \times 1\frac{1}{4}$	18	$1\frac{3}{8}$	5.00
85-L	85-R	1 x 2 x 11	$\frac{7}{16} \times 1\frac{3}{8}$	20 to 24	$1\frac{1}{2}$	7.50
86-L	86-R	$1\frac{1}{4} \times 2\frac{1}{4} \times 13$	$\frac{1}{2} \times 1\frac{1}{2}$	30 to 36	$1\frac{3}{4}$	11.00

*As there is a wide variation in the proportion of lathes of different manufacture, it is only possible to give approximate size or swing of lathes adapted to the use of ARMSTRONG tools of different sizes. Tool posts should be carefully measured before ordering tools.

For best results, use ARMSTRONG High Speed Side Tool Blades—see page 30

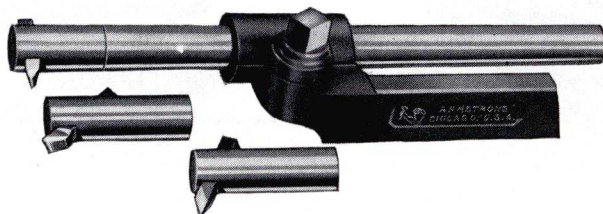


ARMSTRONG BORING TOOLS

The convenience and many practical advantages of the ARMSTRONG system of boring tools are known and appreciated in almost every modern machine shop.

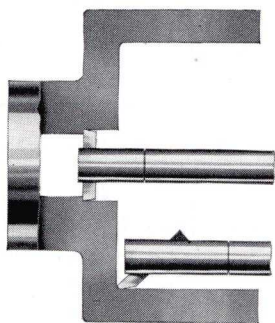
The ARMSTRONG Boring Tool is equal in practical efficiency to a whole set of forged boring and inside threading tools.

A half turn of one screw clamps or releases the bar which can be extended from the shank or holder to any desired length giving the greatest degree of stiffness possible on every job.

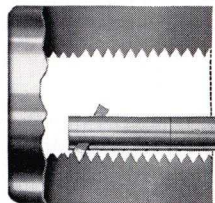


End caps used with this tool lock the cutters rigidly under a tool steel automatic set screw which cannot loosen while tool is cutting, yet instantly releases tool bit for removal.

End caps are interchangeable without removing bar. Furnished in three styles: 90° for boring with single or double head cutter; 45° for boring and facing; 30° for internal threading.



The illustration at the left shows 90° end cap with double end tool bit roughing out cored hole, and also 45° end cap cutter boring and facing end.



Showing 30° end cap cutting internal thread.

The holder of each tool is drop forged from a special steel and is accurately machined, heat treated and hardened.

Each tool is boxed separately and includes holder and bar, 90°, 45° and 30° end caps, three High Speed tool bits and double head wrench.

For boring bar bushings to bush small size bars to larger holders, see boring tool bushings, described on page 11.

No.	Size of Holder Inches	Size Tool Bit Square, Inches	Diameter of Bar Inches	For Lathes, *Approximate Swing Inches (Inclusive)	Nominal Height from Bottom of Shank to Center Inches	Approximate Weight Lb.
†7	$\frac{5}{16} \times \frac{3}{4} \times \frac{47}{8}$	$\frac{3}{16}$	$\frac{1}{2}$	6 to 8	$\frac{3}{4}$	1.50
8	$\frac{3}{8} \times \frac{7}{8} \times 5\frac{3}{8}$	$\frac{3}{16}$	$\frac{9}{16}$	9 to 10	$\frac{7}{8}$	1.75
9	$\frac{1}{2} \times 1\frac{1}{8} \times 6\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{4}$	11 to 14	$1\frac{1}{8}$	3.75
10	$\frac{5}{8} \times 1\frac{3}{8} \times 7\frac{1}{16}$	$\frac{5}{16}$	$1\frac{1}{16}$	14 to 16	$1\frac{1}{4}$	6.50
11	$\frac{3}{4} \times 1\frac{5}{8} \times 8\frac{7}{16}$	$\frac{3}{8}$	$1\frac{1}{8}$	16	$1\frac{1}{2}$	11.00
12	$\frac{7}{8} \times 1\frac{3}{4} \times 9\frac{3}{4}$	$\frac{7}{16}$	$1\frac{5}{16}$	18	$1\frac{5}{8}$	17.00
13	1 x 2 x $11\frac{1}{16}$	$\frac{1}{2}$	$1\frac{1}{2}$	20 to 24	$1\frac{3}{4}$	25.00

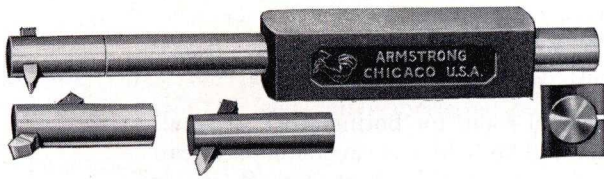
†Old No. OOB

*As there is a wide variation in the proportions of lathes of different manufacturers, it is only possible to give approximate size of swing of lathes adapted to the use of ARMSTRONG tools of different sizes. Tool posts should be carefully measured before ordering tools.

For best results, use ARMSTRONG High Speed Tool Bits—see page 30



ARMSTRONG BORING TOOLS



Especially designed for use on lathes of British and European make having clamp tool rest and American lathes of similar design.

Each tool is boxed separately; includes holder and bar, 90°, 45° and 30° end caps, three ARMSTRONG High Speed tool bits, double head wrench.

For boring bar bushings to bush small size bars to larger holders, see boring tool bushings described below.

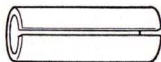
No.	Size of Holder Inches	Size of Tool Bit Inches	Diameter of Bar Inches	Nominal Height from Bottom of Holder to Center Inches	Approx. Weight Lb.
108	$\frac{3}{4} \times \frac{7}{8} \times 3\frac{1}{4}$	$\frac{3}{16}$	$\frac{9}{16}$	$\frac{7}{16}$	1.5
109	1 x $1\frac{1}{8} \times 4\frac{9}{32}$	$\frac{1}{4}$	$\frac{3}{4}$	$\frac{9}{16}$	3.0
110	$1\frac{1}{4} \times 1\frac{3}{8} \times 5\frac{9}{32}$	$\frac{5}{16}$	$\frac{15}{16}$	$\frac{11}{16}$	5.5
111	$1\frac{1}{2} \times 1\frac{5}{8} \times 6\frac{9}{32}$	$\frac{3}{8}$	$1\frac{1}{8}$	$\frac{13}{16}$	9.0
112	$1\frac{3}{4} \times 1\frac{7}{8} \times 7\frac{9}{32}$	$\frac{7}{16}$	$1\frac{3}{16}$	$\frac{15}{16}$	15.0
113	2 x $2\frac{1}{8} \times 8\frac{1}{4}$	$\frac{1}{2}$	$1\frac{1}{2}$	$\frac{11}{16}$	20.0
114	$2\frac{1}{4} \times 2\frac{3}{8} \times 9\frac{3}{16}$	$\frac{5}{8}$	$1\frac{13}{16}$	$\frac{13}{16}$	31.0

BORING TOOL PARTS

When ordering, be sure to specify catalog number.

For Boring Bar Diam. Inches	90° End Cap		45° End Cap		30° End Cap		Wrench	
	Part No.	Approx. Weight Lb.	Part No.	Approx. Weight Lb.	Part No.	Approx. Weight Lb.	Part No.	Approx. Weight Lb.
$\frac{1}{2}$	8001	.03	8021	.06	8041	.06	8081	.19
$\frac{9}{16}$	8002	.05	8022	.13	8042	.13	8082	.25
$\frac{3}{4}$	8003	.13	8023	.25	8043	.25	8083	.44
$\frac{15}{16}$	8004	.19	8024	.50	8044	.44	8084	.63
$1\frac{1}{8}$	8005	.31	8025	.63	8045	.56	8085	1.06
$1\frac{5}{16}$	8006	.50	8026	1.06	8046	1.00	8086	1.50
$1\frac{1}{2}$	8007	.75	8027	1.44	8047	1.25	8087	2.06
$1\frac{13}{16}$	8008	1.31	8028	2.50	8048	2.13	8088	1.94

BORING TOOL BUSHINGS



Boring Tool Bushings are used to bush small size bars to larger holders. When ordering, please specify number. Bushings listed for tool Nos. 8, 9, 10 can also be used in tool Nos. 108, 109, 110, etc.

Bushing No.	For Boring Bar Diameter Inches	Fits Tool Shank No.	Approx. Weight Lb.	Bushing No.	For Boring Bar Diameter Inches	Fits Tool Shank No.	Approx. Weight Lb.
8178	$\frac{1}{2}$	8	.02	8191	$\frac{3}{4}$	12	.44
8179	$\frac{1}{2}$	9	.02	8193	$\frac{15}{16}$	11	.25
8180	$\frac{1}{2}$	10	.02	8194	$\frac{15}{16}$	12	.25
8184	$\frac{9}{16}$	9	.13	8195	$\frac{15}{16}$	13	.25
8185	$\frac{9}{16}$	10	.13	8196	$1\frac{1}{8}$	12	.31
8186	$\frac{9}{16}$	11	.13	8197	$1\frac{1}{8}$	13	.31
8189	$\frac{3}{4}$	10	.44	8198	$1\frac{5}{16}$	13	.50
8190	$\frac{3}{4}$	11	.44	....	...	..	...



ARMSTRONG BORING TOOL HOLDER

For Light Boring, Threading and Turning

This tool will be found very handy in the tool room for boring work of small internal diameter, threading, brass turning, etc. The holder is reversible, and can be used for turning either right or left hand, since the floating tool steel gib allows the yoke to clear the end of the holder.

Each tool is drop forged from a special steel and is accurately machined, heat treated and hardened. Each tool is boxed separately and includes necessary wrench.

This boring tool holder is furnished as follows:

Boring Tool holder only, without boring bars or tool bit.

With two forged boring bars and one high speed square tool bit.

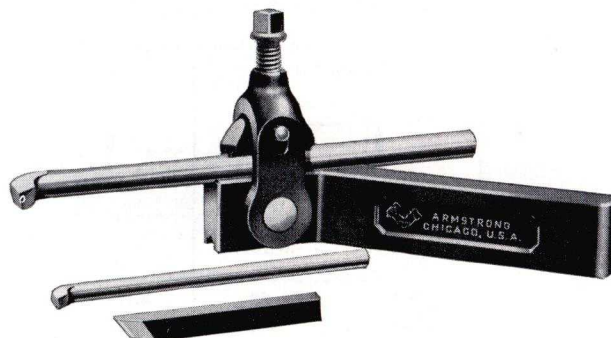
With two clamp boring bars and four high speed round tool bits.

Boring Tool Holder Only, Without Boring Bars or Tool Bits

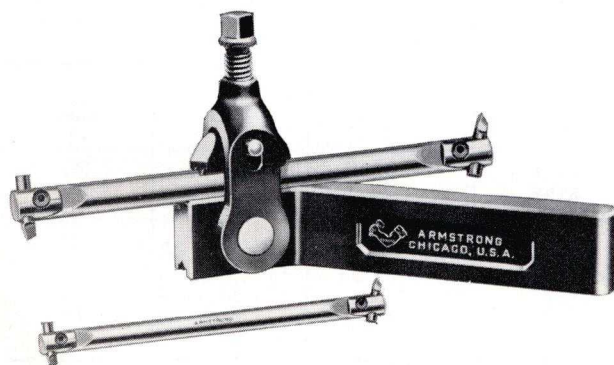


No.	Size of Holder Inches	WILL ACCOMMODATE		Approx. Weight Lb.
		Boring Bars, Diameter Inches	Square Bits, Size Inches	
15	$\frac{3}{8} \times \frac{3}{4}$	$\frac{3}{16}$ & $\frac{1}{4}$	$\frac{1}{4}$	.88
16	$\frac{1}{2} \times 1$	$\frac{3}{16}$ & $\frac{5}{16}$	$\frac{5}{16}$	1.56
17	$\frac{5}{8} \times 1\frac{1}{4}$	$\frac{1}{4}$ & $\frac{3}{8}$	$\frac{3}{8}$	2.31
18	$\frac{3}{4} \times 1\frac{1}{2}$	$\frac{5}{16}$ & $\frac{7}{16}$	$\frac{7}{16}$	3.61

Boring Tool Holder with Two Forged Boring Bars and One High Speed Square Tool Bit



No.	Old No.	Size of Holder Inches	Forged Bars, Diameter Inches	Square Bits, Size Inches	Approx. Weight Lb.
15-F	15	$\frac{3}{8} \times \frac{3}{4}$	$\frac{3}{16}$ & $\frac{1}{4}$	$\frac{1}{4}$	1.00
16-F	16	$\frac{1}{2} \times 1$	$\frac{3}{16}$ & $\frac{5}{16}$	$\frac{5}{16}$	1.75
17-F	17	$\frac{5}{8} \times 1\frac{1}{4}$	$\frac{1}{4}$ & $\frac{3}{8}$	$\frac{3}{8}$	2.75
18-F	18	$\frac{3}{4} \times 1\frac{1}{2}$	$\frac{5}{16}$ & $\frac{7}{16}$	$\frac{7}{16}$	4.50



Boring Tool Holder with Two Clamp Boring Bars and Four High Speed Round Tool Bits

No.	Size of Holder Inches	Cutter Clamp Bars, Diameter Inches	Round Tool Bit, Diameter Inches	Approx. Weight Lb.
15-C	$\frac{3}{8} \times \frac{3}{4}$	$\frac{3}{16}$ & $\frac{1}{4}$	$\frac{3}{32}$	1.02
16-C	$\frac{1}{2} \times 1$	$\frac{1}{4}$ & $\frac{3}{8}$	$\frac{1}{8}$	1.89
17-C	$\frac{5}{8} \times 1\frac{1}{4}$	$\frac{3}{8}$ & $\frac{1}{2}$	$\frac{3}{16}$	2.61
18-C	$\frac{3}{4} \times 1\frac{1}{2}$	$\frac{3}{8}$ & $\frac{1}{2}$	$\frac{1}{4}$	3.91



ARMSTRONG 3-BAR BORING TOOL

A slight turn of one nut allows bars to be changed as needed instantly, thus allowing the operator to use the stiffest bar possible for each job with the result that speeds and feeds can be increased and time saved.

Each set is boxed separately and includes holder,

three ARMSTRONG Boring Bars with 90°, 45° and 30° end caps, nine ARMSTRONG High Speed tool bits and combination wrench.

No. 00-B is furnished with one solid type boring bar, two boring bars with 90°, 45° and 30° end caps, six high speed tool bits and three wrenches.



No.	Diameter of Bars Inches	Length of Bars Inches	Size Tool Bits Square, Inches	For Lathes *Approx. Swing Inches	Nom. Ht. from Bottom to Ctr. of Holder Inches	Diam. of Holder	Approx. Wt. Lb.
00-B	* $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$	7, 8, 11	* $\frac{3}{16}$, $\frac{1}{4}$	8 to 10	$\frac{15}{16}$	2	8
0-B	$\frac{1}{2}$, $\frac{9}{16}$, $\frac{3}{4}$	8, 9, 11	$\frac{3}{16}$, $\frac{3}{16}$, $\frac{1}{4}$	11 to 14	$\frac{17}{8}$	2 $\frac{1}{2}$	12
1-B	$\frac{1}{2}$, $\frac{3}{4}$, $1\frac{1}{8}$	8, 11, 16	$\frac{3}{16}$, $\frac{1}{4}$, $\frac{3}{8}$	12 to 16	$\frac{21}{8}$	3 $\frac{1}{8}$	18
2-B	$\frac{9}{16}$, $\frac{15}{16}$, $1\frac{5}{16}$	9, 13, 18	$\frac{3}{16}$, $\frac{5}{16}$, $\frac{7}{16}$	16 to 18	$\frac{21}{2}$	3 $\frac{1}{2}$	27
3-B	$\frac{3}{4}$, $1\frac{1}{8}$, $1\frac{1}{2}$	11, 16, 23	$\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$	20 to 22	$\frac{27}{8}$	4 $\frac{1}{4}$	50
4-B	$\frac{15}{16}$, $1\frac{5}{16}$, $1\frac{13}{16}$	13, 18, 28	$\frac{5}{16}$, $\frac{7}{16}$, $\frac{5}{8}$	24 to 32	$\frac{31}{4}$	4 $\frac{7}{8}$	75

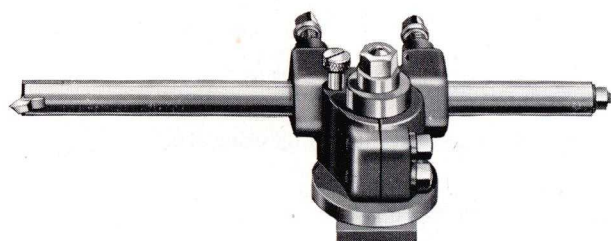
Note: Bolt head and bottom part of holder are made of ample size to allow for fitting which is necessary on account of the great variation in height of centers above slide rest and difference in sizes of T slots.

* $\frac{3}{8}$ " bar is solid.

Fitting: An extra charge will be made for fitting holders to the lathe on which the tool is to be used.

ARMSTRONG ADJUSTABLE BORING TOOL

This tool combines convenience, adjustability and rigidity to a remarkable degree and is well adapted to a very wide range of work.



The holder is easily adjustable to different heights and will hold bars of various diameters. The bars are made from high carbon steel seamless tubing of heavy gauge and are extremely stiff.

The tool bit can be adjusted and solidly fixed at various angles for boring, facing or turning.

Each tool is boxed separately; includes holder, one bar, two ARMSTRONG High Speed tool bits, wrench.

No.	Capacity of Holder Diameter Bars Inches	Size Bar Furnished Inches	Size Tool Bit Inches	For Lathes Approximate Swing, Inches	Approx. Weight Lb.
212	$\frac{3}{4}$ to $1\frac{5}{16}$	$1\frac{5}{16}$ x 21	$\frac{3}{8}$	14 to 18	25
213	$\frac{3}{4}$ to $1\frac{1}{2}$	$1\frac{1}{2}$ x 24	$\frac{7}{16}$	16 to 20	38
214	$\frac{3}{4}$ to $1\frac{13}{16}$	$1\frac{13}{16}$ x 28	$\frac{1}{2}$	18 to 24	75
215	$\frac{3}{4}$ to $2\frac{1}{4}$	$2\frac{1}{4}$ x 36	$\frac{5}{8}$	20 to 36	120

Note: Bolt head is made large enough to allow for fitting to T slots of various sizes.

Fitting: An extra charge will be made for fitting bolt head to special dimensions.

ADJUSTABLE BORING BARS

Includes one bar of size specified, two ARMSTRONG High Speed tool bits and wrench.

No.	SIZE OF BAR		Size Tool Bit Square, Inches	Approx. Weight Lb.
	Diameter Inches	Length Inches		
0521	$\frac{3}{4}$	14	$\frac{3}{16}$	1.75
0522	$\frac{15}{16}$	16	$\frac{1}{4}$	3.25
0523	$1\frac{1}{8}$	18	$\frac{5}{16}$	5.00
0524	$1\frac{5}{16}$	21	$\frac{3}{8}$	7.50
0525	$1\frac{1}{2}$	24	$\frac{7}{16}$	11.00
0526	$1\frac{13}{16}$	28	$\frac{1}{2}$	19.00
0527	$2\frac{1}{4}$	36	$\frac{5}{8}$	38.00

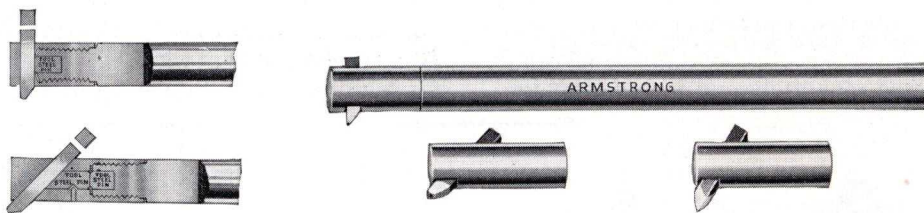
For best results, use ARMSTRONG High Speed Tool Bits—see page 30



ARMSTRONG BORING BARS

For Use in ARMSTRONG Boring Tools

END CAP PATTERN BARS



For boring, facing and internal threading, the ARMSTRONG End Cap Pattern Boring Bar is unexcelled. The end cap locks the tool bit rigidly under a tool steel automatic set screw which cannot loosen while the tool is cutting, yet instantly releases the tool bit for removal. The end caps are interchangeable without removing the bar from the holder.

Each ARMSTRONG Boring Bar is machined from a selected steel and is accurately broached.

Each bar is boxed separately and includes 90°, 45° and 30° end caps, three ARMSTRONG High Speed tool bits and double head wrench.

For boring bar bushings to bush small size bars to larger holders, see boring tool bushings described on page 11.

No.	DIMENSIONS OF BAR		Size Tool Bit Inches	Approximate Weight Lb.
	Diameter Inches	Length Inches		
*07	$\frac{1}{2}$	8	$\frac{3}{16}$	.75
08	$\frac{9}{16}$	9	$\frac{3}{16}$	1.00
09	$\frac{3}{4}$	11	$\frac{1}{4}$	2.25
010	$\frac{15}{16}$	13	$\frac{5}{16}$	4.50
011	$1\frac{1}{8}$	16	$\frac{3}{8}$	7.00
012	$1\frac{5}{16}$	18	$\frac{7}{16}$	11.00
013	$1\frac{1}{2}$	23	$\frac{1}{2}$	15.00
014	$1\frac{13}{16}$	28	$\frac{5}{8}$	23.00

*Old No. OB

Note: These boring bars may be adapted to screw machines and turret lathes by using the plain turners described on page 22.

PLAIN BARS



The ARMSTRONG Plain Boring Bar has one end broached at 90° angle and the opposite end broached at 45° angle for square tool bits.

Each ARMSTRONG boring bar is machined from a selected steel and is accurately broached.

Each bar is boxed separately and includes two ARMSTRONG High Speed tool bits and hollow set screw wrench.

For boring bar bushings to bush small size bars to larger holders, see boring tool bushings described on page 11.

No.	DIMENSIONS OF BAR		Size Tool Bit Inches	Approximate Weight Lb.
	Diameter Inches	Length Inches		
*07-X	$\frac{1}{2}$	8	$\frac{3}{16}$	.75
08-X	$\frac{9}{16}$	9	$\frac{3}{16}$	1.00
09-X	$\frac{3}{4}$	11	$\frac{1}{4}$	2.25
010-X	$\frac{15}{16}$	13	$\frac{5}{16}$	4.50
011-X	$1\frac{1}{8}$	16	$\frac{3}{8}$	7.00
012-X	$1\frac{5}{16}$	18	$\frac{7}{16}$	11.00
013-X	$1\frac{1}{2}$	23	$\frac{1}{2}$	15.00
014-X	$1\frac{13}{16}$	28	$\frac{5}{8}$	23.00

*Old No. OB-X

Note: These boring bars may be adapted to screw machines and turret lathes by using the plain turners described on page 22.



ARMSTRONG BORING BARS

For Use in ARMSTRONG Boring Tools

FORGED BORING BARS



These Boring Bars are forged from the best high speed steel, properly hardened, tempered and ground to shape ready for finish grinding.

Packed six of a size in a box.

No.....	8140	8141	8142	8143	8144	8145
Diameter.....inches	$\frac{1}{8}$	$\frac{3}{16}$	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{7}{16}$
Length.....inches	4	4 $\frac{1}{2}$	5	6	7	8
Approximate Weight.....lb.	.02	.03	.06	.13	.25	.38

CLAMP BORING BARS



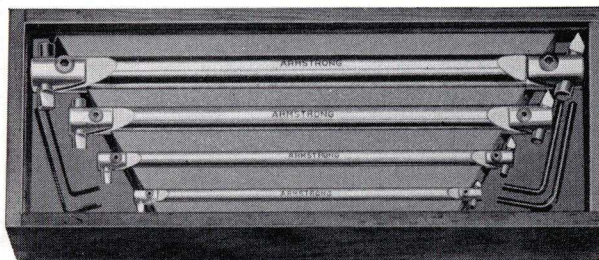
The ARMSTRONG Clamp Boring Bar is designed to hold tool bits at extreme ends of bar without interference of set screws or bolts. One bit is held at an angle of 15°, the other at 90°.

The ARMSTRONG clamp boring bar is made from selected steel.

Each bar is boxed separately and includes two ARMSTRONG High Speed round tool bits (one ground for boring, one for threading) and a hollow screw wrench.

No.	DIMENSIONS		Tool Bit Diameter Inches	For Use with Boring Tool Holder	Approx. Weight Lb.
	Diam. Inches	Length Inches			
951	$\frac{3}{16}$	5	$\frac{3}{32}$	15	.06
952	$\frac{1}{4}$	6	$\frac{1}{8}$	15 or 16	.08
953	$\frac{3}{8}$	7	$\frac{3}{16}$	16 or 17	.25
954	$\frac{1}{2}$	8	$\frac{1}{4}$	16, 17 or 18	.50

SET NO. CB-4 CLAMP BORING BARS



Set consists of four bars in fitted wooden box, one each $\frac{3}{16}$, $\frac{1}{4}$, $\frac{3}{8}$ and $\frac{1}{2}$ " bars (see above), eight round tool bits, and four hollow screw wrenches.

Approximate weight, 1.17 lb.

ARMSTRONG HIGH SPEED ROUND TOOL BITS

For Use in ARMSTRONG Clamp Boring Bars



ARMSTRONG High Speed Round Tool Bits are made of a superior grade of high speed steel; carefully heat treated, hardened, tempered and tested. Sold only in standard packages of ten. Bits are furnished ground for boring or threading, as listed.

Boring Bit No.	Threading Bit No.	Diameter Bit Inches	For Use with Bar No.	Approx. Weight Lb.
951-B	951-T	$\frac{3}{32}$	951	.04
952-B	952-T	$\frac{1}{8}$	952	.10
953-B	953-T	$\frac{3}{16}$	953	.18
954-B	954-T	$\frac{1}{4}$	954	.25



ARMSTRONG THREADING TOOLS

For Formed Cutters

A Threading Tool is essentially a forming tool and any error or inaccuracy of shape or angle in the tool point will surely be reproduced in the thread and must result in poorly fitted work.



The cutters used in the ARMSTRONG Threading Tool require grinding on the top edge only to sharpen and therefore always remain true to form and of correct angle; their use insures perfect fitting threads and saves much grinding.

The cutters are backed off to afford proper clearance. The back of the cutter is eccentric in form and bears upon a hardened stop screw. This arrangement permits positive and accurate adjustment after grinding.

Drop forged from a special steel, accurately machined, heat treated and hardened, each tool is boxed separately and includes wrench and one ARMSTRONG High Speed Sharp V-thread cutter unless otherwise ordered.

No.	Size of Holder, Inches	For Lathes Approximate Swing, Inches (Inclusive)	Nominal Height from Bottom of Shank to Cutter Point, Inches	Approximate Weight, Lb.
00T	$\frac{5}{16} \times \frac{3}{4} \times 5$	7 to 10	$\frac{3}{4}$	.75
50	$\frac{3}{8} \times \frac{7}{8} \times 5$	10 to 12	$\frac{7}{8}$	.88
51	$\frac{1}{2} \times 1 \frac{1}{8} \times 6$	14 to 16	$1 \frac{1}{8}$	1.50
52	$\frac{5}{8} \times 1 \frac{3}{8} \times 7$	16 to 18	$1 \frac{3}{8}$	2.25
53	$\frac{3}{4} \times 1 \frac{5}{8} \times 8$	18 to 20	$1 \frac{3}{4}$	3.50
54	$\frac{7}{8} \times 1 \frac{3}{4} \times 9$	24 to 36	$1 \frac{7}{8}$	4.25

When ordering tools equipped with American Standard Thread cutters or Whitworth Truncated Standard Thread Form (B.S.W.) cutters, be sure to specify pitch or number of threads per inch wanted. For lists of pitches available, see page 17. Tools equipped with Sharp V-thread cutters will always be shipped unless otherwise ordered. For extra cutters and list of pitches available, see page 17.

ARMSTRONG SPRING THREADING TOOLS

For Formed Cutters



The ARMSTRONG Spring Threading Tool is designed to combine strength and convenience of adjustment and operation with the resiliency necessary in obtaining a smooth, finished thread especially on alloy steels of an extremely tough nature.

Cutters have same features described above.

Each tool is drop forged from a special steel, accurately machined, heat treated, hardened.

Each tool is boxed separately and includes wrench and one ARMSTRONG High Speed Sharp V-thread cutter unless otherwise ordered.

No.	Size of Holder, Inches (Inclusive)	For Lathes Approximate Swing, Inches	Nominal Height from Bottom of Shank to Cutter Point, Inches	Approx. Weight, Lb.
NS-50	$\frac{3}{8} \times \frac{7}{8} \times 5 \frac{1}{2}$	10 to 12	$\frac{7}{8}$	.75
NS-51	$\frac{1}{2} \times 1 \frac{1}{8} \times 6 \frac{1}{2}$	14 to 16	$1 \frac{1}{4}$	1.63
NS-52	$\frac{5}{8} \times 1 \frac{3}{8} \times 7 \frac{1}{2}$	16 to 18	$1 \frac{3}{8}$	3.00
NS-53	$\frac{3}{4} \times 1 \frac{5}{8} \times 8 \frac{1}{2}$	18 to 20	$1 \frac{5}{8}$	4.44



ARMSTRONG SPRING THREADING TOOLS

For Square Cutters

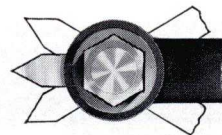
The ARMSTRONG Spring Threading Tool is designed to combine strength and convenience of adjustment and operation with the resiliency which is considered by many machinists to be helpful in obtaining a smooth finishing cut or thread, especially on tough alloy steels.

Convenient means is also provided for obtaining complete rigidity when desired as, for instance in taking a roughing cut or doing an ordinary job of turning. The cutter can be held at different angles as shown.



High Speed threading cutters for this tool are furnished ground to Sharp V-thread form.

Any other form required may be quickly ground to shape from standard ARMSTRONG High Speed tool bits.



The cutter can be held at different angles as shown above.

Drop forged from a special steel, accurately machined, heat treated, hardened.

Each tool is boxed separately and includes one ARMSTRONG High Speed Sharp V-thread cutter and wrench. Extra Square Threading Cutters are described below.

No.	Size of Holder, Inches	Size of Cutter Square, Inches	For Lathes Approximate Swing, Inches	Nominal Height from Shank to Cutter Point, Inches	Approx. Weight, Lb.
S-50	$\frac{3}{8} \times \frac{7}{8} \times 5\frac{1}{2}$	$\frac{1}{4}$	10 to 12	$\frac{5}{8}$	.50
S-51	$\frac{1}{2} \times 1\frac{1}{8} \times 6\frac{1}{2}$	$\frac{3}{16}$	14 to 16	$\frac{3}{4}$	1.00
S-52	$\frac{5}{8} \times \frac{3}{8} \times 7\frac{1}{2}$	$\frac{3}{8}$	16 to 18	$1\frac{1}{16}$	2.00
S-53	$\frac{3}{4} \times 1\frac{5}{8} \times 8\frac{1}{2}$	$\frac{7}{16}$	18 to 20	$1\frac{3}{8}$	3.25

ARMSTRONG FORMED THREADING CUTTERS

Made from Selected High Speed Steel

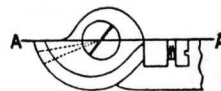
ARMSTRONG Formed Cutters for use with ARMSTRONG Threading Tools are drop forged from selected High Speed Steel.

Grinding and Adjusting Cutters



Always grind the cutter on a line from the point to the center, as indicated by the dotted lines in the accompanying outline view of cutter, then adjust the cutter so that the newly ground cutting edge represented by dotted lines is in a horizontal position or parallel to the line A—A.

When fastening the cutter in position first see that adjusting screw is firmly set against heel of cutter before pulling up nut.



We make and carry in stock single point cutters in treated High Speed Steel, to cut the pitches listed below in Sharp V-thread, American Standard Thread and Whitworth Truncated Standard Thread Form (B.S.W.). Specify pitch except for "V" thread.

For Tool No.	00T, 50 & NS-50	51 & NS-51	52 & NS-52	53, NS-53 & 54
Standard Pitches Available	6 to 20 Inclusive	5 to 20 Inclusive	4 to 20 Inclusive	3 to 20 Inclusive
Sharp V-Thread	No. 8151	No. 8153	No. 8155	No. 8157
*American Standard Coarse	*8161	*8163	*8165	*8167
*Whitworth Standard (B.S.W.)	*8171	*8173	*8175	*8177

*In ordering, specify pitch required.

ARMSTRONG SQUARE THREADING CUTTERS

ARMSTRONG Square Threading Cutters in treated High Speed Steel are furnished ground to Sharp V-thread form and have all four sides accurately ground, ready for use in ARMSTRONG Spring Threading Tools described above.

For Tool No.	S-50	S-51	S-52	S-53
Size of Cutter	$\frac{1}{4} \times \frac{1}{4} \times 2\frac{1}{2}$	$\frac{5}{16} \times \frac{5}{16} \times 2\frac{1}{2}$	$\frac{3}{8} \times \frac{3}{8} \times 3$	$\frac{7}{16} \times \frac{7}{16} \times 3\frac{1}{2}$
No. of Cutter	8101	8102	8103	8104
Approx. Weight .....	.03	.06	.13	.19



ARMSTRONG KNURLING TOOLS

The ARMSTRONG Knurling Tool is self centering and the knuckle or joint has ample bearing to resist the severe strains of both end and side thrust. In these essentials, this tool is unexcelled. The knurls and pins are accurately made of tool steel suitably tempered. All other parts are drop forged

or bar steel, hardened. Standard face medium diamond knurls always furnished unless otherwise ordered. Tools can be furnished with either diamond or straight line knurls, standard or full face, fine, medium or coarse pitch.

Each tool is separately boxed.



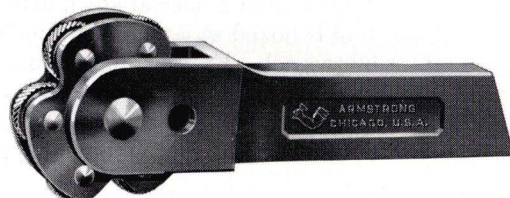
No.	Size of Holder Inches	DIMEN. OF KNURLS			Knurling Capacity Diameter Inches	For Lathes Approx. Swing Inches	Approx. Weight Lb.
		Diam. Inches	Face (Std.) Inches	Hole Inches			
00-K	$\frac{5}{16} \times \frac{3}{4} \times 5$	$\frac{5}{8}$	$\frac{3}{16}$	$\frac{7}{32}$	$\frac{1}{8}$ Up	7 to 10	.6
0-K	$\frac{3}{8} \times \frac{7}{8} \times 5\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{16}$	$\frac{7}{32}$	$\frac{1}{8}$ Up	10 to 12	.9
1-K	$\frac{1}{2} \times 1\frac{1}{8} \times 6\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{3}{16}$ Up	14 to 16	1.5
2-K	$\frac{5}{8} \times 1\frac{3}{8} \times 7\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{3}{16}$ Up	16 to 18	2.0
4-K	$\frac{7}{8} \times 1\frac{3}{4} \times 9$	1	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{1}{4}$ Up	24 to 36	4.0

Extra Knurls and Knurl Pins are listed below.

With Revolving Head

The advantages of this tool are apparent at a glance. Revolving head is fitted with three pairs of knurls, fine, medium and coarse, any of which can be used without the inconvenience and loss of time incident to changing knurls. Knurls and pins are accurately made of tool steel suitably tempered. All other parts are drop forged or bar steel, hardened.

Standard face diamond knurls are always furnished unless otherwise ordered.



Tools can be furnished with either diamond or straight line knurls, standard or full face, fine, medium or coarse pitch. Each tool is boxed separately.

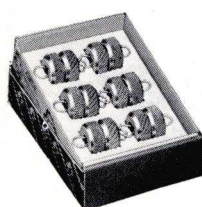
Extra Knurl Pins

When ordering, specify by catalog No.

No.	Size of Holder Inches	DIMEN. OF KNURLS			Knurling Capacity Diameter Inches	For Lathes Approx. Swing Inches	Approx. Weight Lb.
		Diam. Inches	Face (Std.) Inches	Hole Inches			
3-K-00	$\frac{5}{16} \times \frac{3}{4} \times 5$	$\frac{5}{8}$	$\frac{3}{16}$	$\frac{7}{32}$	$\frac{3}{16}$ Up	7 to 10	1.00
3-K-0	$\frac{3}{8} \times \frac{7}{8} \times 5\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{16}$	$\frac{7}{32}$	$\frac{3}{16}$ Up	10 to 12	1.25
3-K-1	$\frac{1}{2} \times 1\frac{1}{8} \times 6\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$ Up	14 to 16	2.00
3-K-2	$\frac{5}{8} \times 1\frac{3}{8} \times 7\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$ Up	16 to 18	2.50

Pair No.	For Tool Nos.	Pair, Approx. Wt., Lb.
8097	00-K, 0-K, 3-K-00, 3-K-0	.02
8098	1-K, 2-K, 3-K-1, 3-K-2	.03
8099	4-K	.05

ARMSTRONG KNURLS



Standard Package

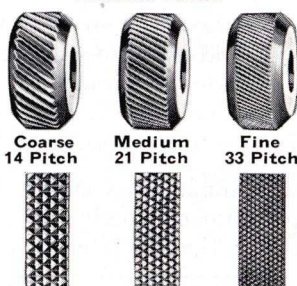
ARMSTRONG Knurls are individually hob-cut to obtain sharp, perfectly formed teeth in every knurl. Consequently these knurls produce work of uniform precision. Held within close limits of accuracy for thickness and

for diameter of hole which is always concentric under hob-cut method of manufacture. Cut from extra high-carbon tool steel, heat treated, tempered and tested.

Knurls are furnished in pairs to fit all standard makes of knurling tools, in diamond or straight line pattern, either standard or full face. When ordering, specify catalog No.

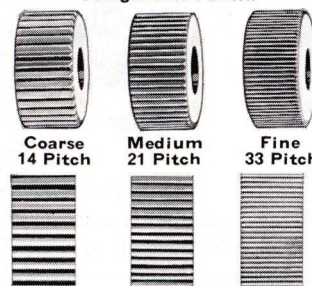
Knurls can also be
Furnished in High Speed
Steel at special prices

Diamond Pattern



Knurling produced by pairs of right and left-hand Diamond Standard Face Knurls

Straight Line Pattern



Knurling produced by pairs of Straight Line Full Face Knurls

Diamond Pattern		Straight Line Pattern		Pitch	For Knurling Tool No.	DIMENSIONS OF KNURLS					Pair Approx. Weight Lb.
Std. Face No.	Full Face No.	Std. Face No.	Full Face No.			Diam. Inches	Std. Face Width Inches	Full Face Width Inches	Hole Diam. Inches	Thick-ness Inches	
8221	8241	8261	8271	14	{ 00-K, 0-K 3-K-00, 3-K-0 *670, *671, *672	5/8	3/16	5/16	7/32	5/16	.03
8224	8244	8264	8274	21							
8227	8247	8267	8277	33							
8222	8242	8262	8272	14	{ 1-K, 2-K 3-K-1, 3-K-2 *673, *674	3/4	1/4	3/8	1/4	3/8	.06
8225	8245	8265	8275	21							
8228	8248	8268	8278	33							
8223	8243	8263	8273	14	4-K	1	1/4	3/8	5/16	3/8	.13
8226	8246	8266	8276	21							
8229	8249	8269	8279	33							

*Knurling tools for Screw Machines and Turret Lathes, described on page 23.



ARMSTRONG LATHE TOOL SETS

"BIG TEN" TOOL HOLDER SET

The ARMSTRONG "Big Ten" Tool Holder Set includes the ten tools illustrated at right and is so complete as to cover the entire range of lathe work and to render entirely unnecessary the forging of tools with attendant waste of time and material.

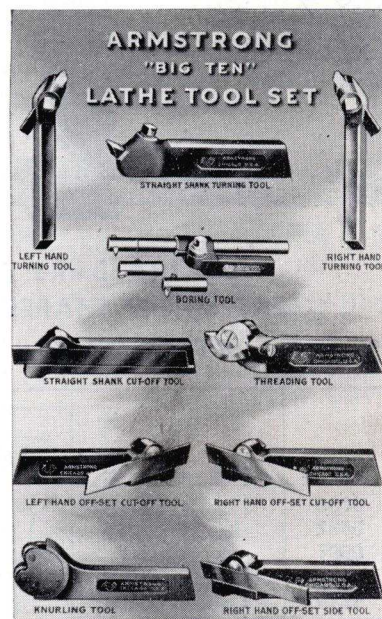
Each set, Nos. A00 to A2 inclusive, is furnished in a special steel case.



"Big Ten" Tool Holder Set

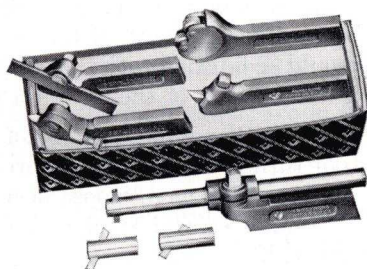
Set No.	Size of Holders Inches	For Lathes Approximate Swing, Inches	Approx. Weight Lb.
A00	$\frac{5}{16} \times \frac{3}{4}$	7 to 10	6.50
A0	$\frac{3}{8} \times \frac{7}{8}$	10 to 12	11.50
A1	$\frac{1}{2} \times 1\frac{1}{8}$	14 to 16	21.00
A2	$\frac{5}{8} \times 1\frac{3}{8}$	16 to 18	27.00
†A3	$\frac{3}{4} \times 1\frac{5}{8}$	18 to 20	46.75
A4	$\frac{7}{8} \times 1\frac{3}{4}$	24 to 36	63.63

†Set consists of 9 tools, no knurling tool.



"HANDY FIVE" TOOL HOLDER SET

The ARMSTRONG "Handy Five" Tool Holder Set includes the five lathe tools which are constantly used on ordinary work: Straight Shank Turning Tool, Boring Tool, Threading Tool, Right-Hand Offset Cutting-off Tool and Self-Centering Knurling Tool.



"Handy Five" Tool Holder Set

Set No.	Size of Holders Inches	For Lathes Approximate Swing, Inches	Approx. Weight Lb.
00-G	$\frac{5}{16} \times \frac{3}{4}$	7 to 10	4.00
0-G	$\frac{3}{8} \times \frac{7}{8}$	10 to 12	5.21
1-G	$\frac{1}{2} \times 1\frac{1}{8}$	14 to 16	9.63
2-G	$\frac{5}{8} \times 1\frac{3}{8}$	16 to 18	16.25
*3-G	$\frac{3}{4} \times 1\frac{5}{8}$	18 to 20	23.00
4-G	$\frac{7}{8} \times 1\frac{3}{4}$	24 to 36	46.69

*Set consists of 4 tools, no knurling tool.



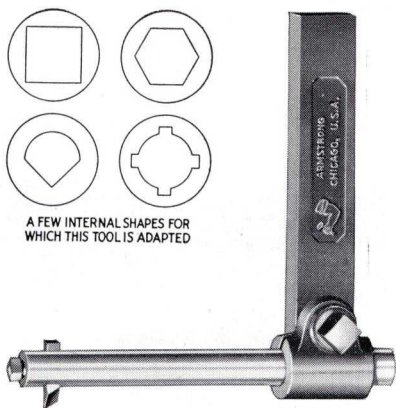
ARMSTRONG EXTENSION SHAPER TOOLS

The ARMSTRONG Extension Shaper Tool is an extremely rigid and convenient tool, well adapted for die work, cutting internal keyways, or for any kind of work on the shaper in which extra clearance is needed.

Each tool is drop forged from a special steel and is accurately machined, heat treated and hardened. The bars are made from a tough steel and are extremely rigid.

Each tool is boxed separately and includes one holder, one bar, one ARMSTRONG High Speed tool bit and wrench.

For extra High Speed Tool Bits, see page 30.



A FEW INTERNAL SHAPES FOR WHICH THIS TOOL IS ADAPTED

No.	Size of Holder Inches	Size Bar Inches	Size of Tool Bit Square Inches	Approx. Weight Lb.
*46	$\frac{3}{8} \times \frac{7}{8} \times 5\frac{1}{2}$	$\frac{1}{2} \times 7\frac{1}{2}$	$\frac{3}{16}$	1.13
47	$\frac{1}{2} \times 1\frac{1}{8} \times 7$	$\frac{3}{4} \times 10$	$\frac{5}{16}$	3.25
48	$\frac{5}{8} \times 1\frac{3}{8} \times 8\frac{1}{2}$	$\frac{15}{16} \times 12$	$\frac{3}{8}$	6.00
49	$\frac{3}{4} \times 1\frac{5}{8} \times 10$	$1\frac{1}{8} \times 14$	$\frac{7}{16}$	9.75

*No. 46 shank employs two hollow set screws to hold the bar instead of split collar illustrated.

EXTRA BARS FOR EXTENSION SHAPER TOOLS

Includes bar, one high speed tool bit and wrench.

No.	DIMENSIONS OF BAR		Size of Tool Bit Square	Fits Tool No.	Approx. Weight Lbs.
	Diam.	Length			
0530	$\frac{1}{2}$	$7\frac{1}{2}$	$\frac{3}{16}$	46	.63
0532	$\frac{5}{8}$	$8\frac{1}{2}$	$\frac{1}{4}$	*	.88
0597	$\frac{3}{4}$	10	$\frac{5}{16}$	47	1.81
0598	$\frac{15}{16}$	12	$\frac{3}{8}$	48	2.81
0540	$1\frac{1}{8}$	14	$\frac{7}{16}$	49	4.63

*With necessary bushings, fits tools Nos. 47, 48 and 49.

BUSHINGS FOR EXTENSION SHAPER TOOL BARS

Used for bushing smaller shaper tool bars to larger extension shaper tools.

No.	For Extension Shaper Bar, Diameter	Fits Tool No.	Approx. Weight Lb.	No.	For Extension Shaper Bar, Diameter	Fits Tool No.	Approx. Weight Lb.
0530-A	$\frac{1}{2}$	47	.20	0532-C	$\frac{5}{8}$	49	.50
0530-B	$\frac{1}{2}$	48	.30	0597-A	$\frac{3}{4}$	48	.20
0530-C	$\frac{1}{2}$	49	.60	0597-B	$\frac{3}{4}$	49	.40
0532-A	$\frac{5}{8}$	47	.15	0598-A	$\frac{15}{16}$	49	.35
0532-B	$\frac{5}{8}$	48	.25	.....	..	..	...

ARMSTRONG PLANER AND SHAPER TOOLS

Convenient—Efficient—Economical

Fig. 1 shows the ARMSTRONG Planer Tool at work in close corners, giving a good general idea of the clearance obtained. It shows also a few of the angles at which the tool bit can be set. A job similar to the one shown could be finished with the ARMSTRONG Planer tool without shifting the position of the work on the bed.

Fig. 2 shows the ARMSTRONG Planer Tool cutting a keyway with the tool bit reversed and the tool turned around, thus throwing the cutting point behind center of tool and working as a "goose neck" tool.

Each tool is drop forged from a special steel and is accurately machined, heat treated and hardened.

Each Planer and Shaper tool is boxed separately and includes wrench and one ARMSTRONG High Speed tool bit.

For extra High Speed Tool Bits, see page 30.

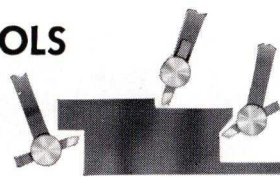


Fig. 1

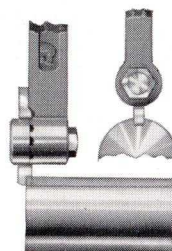


Fig. 2

No.	Size of Holder Inches	Size of Tool Bit, Inches	Approx. Wt., Lb.	No.	Size of Holder Inches	Size of Tool Bit, Inches	Approx. Wt., Lb.
*39	$\frac{3}{8} \times \frac{7}{8} \times 5\frac{1}{2}$	$\frac{1}{4} \times \frac{1}{4}$	1.00	42	$1\frac{1}{8} \times 1\frac{3}{4} \times 13$	$\frac{1}{2} \times \frac{3}{4}$	11.0
*40	$\frac{1}{2} \times 1 \times 6$	$\frac{1}{4} \times \frac{3}{8}$	1.75	43	$1\frac{3}{8} \times 2 \times 16$	$\frac{5}{8} \times \frac{7}{8}$	19.5
*401	$\frac{5}{8} \times 1\frac{1}{4} \times 8\frac{1}{2}$	$\frac{3}{16} \times \frac{7}{16}$	3.25	44	$1\frac{7}{8} \times 2\frac{1}{4} \times 19$	$\frac{3}{4} \times 1$	35.0
*41	$\frac{3}{4} \times 1\frac{1}{2} \times 10$	$\frac{3}{8} \times \frac{1}{2}$	5.00	45	$2\frac{1}{8} \times 2\frac{3}{4} \times 22$	$\frac{7}{8} \times 1\frac{1}{8}$	51.0

*Shaper sizes.

Note: ARMSTRONG Carbide Tool Holders listed on page 3 are also well adapted to planer and shaper work.



ARMSTRONG GANG PLANER TOOL

For Planing Large Surfaces

This tool is especially adapted for surfacing large castings. On this class of work it will effect a savings of 50 to 75 per cent in the time required to do the same job with a single point tool.

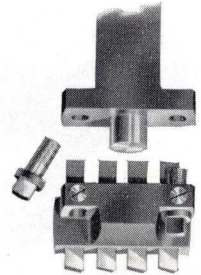
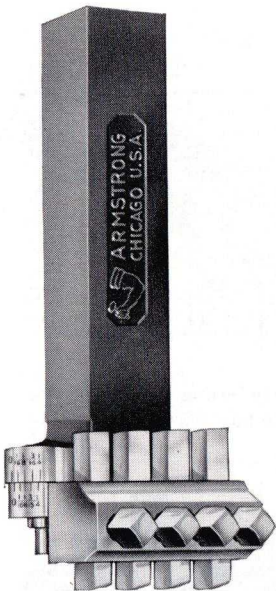
The head is solidly secured to the shank, upon which it swivels to a limited degree by means of a deep and closely fitted tongue and socket. When set, its position is fixed by two steel collar screws, while two stop screws render slipping of the head impossible. The head is graduated, thus enabling the tool to be quickly and accurately set to any desired feed. This makes it possible to have the tool always cutting at the greatest speed practicable on metals of varying degrees of hardness.

As each chip is comparatively light, with this tool, a planer will carry easily a feed and depth of cut much greater than is possible when using an ordinary tool, and there is much less tendency to "break out" at the end of cut.

Each tool is drop forged from a special steel and is accurately machined, heat treated and hardened.

Each tool is boxed separately and includes one set (four) ARMSTRONG High Speed tool bits, wrench and grinding gauge.

For extra High Speed Tool Bits, see page 30.



No.	Size of Holder Inches	Length Overall Inches	Size of Tool Bit Inches	Feed Adjustment Inches	Approx. Wt. Lb.
61	1 1/4 x 1 3/4 x 7 1/2	10	3/8 x 1 1/2	0 to 1/4	10.
62	1 5/8 x 2 1/4 x 9	12	1/2 x 3/4	0 to 3/8	20.
63	2 x 2 1/2 x 11	14	5/8 x 7/8	0 to 1/2	35.

ARMSTRONG SLOTTER TOOL

With Hollow Bar

This tool is very rigid and easily adjustable to different lengths of stroke. It can be rotated conveniently for working into corners or in different positions. It has a spring relief block which saves the tool bit point from wear and tear of the return stroke, and is so constructed as to be protected from chips and dirt.

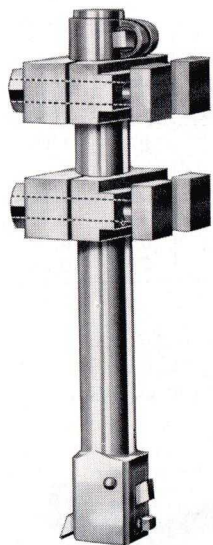
The tool bit is fixed at an angle which allows it to take a clean curling chip without excessive top grinding. As the point can be projected beyond the end of the bar it is possible to cut right down to the table.

Note: As there is considerable difference in the size of T slots of machines of different manufacture, the clamps and bolt heads of this tool are made of ample size to allow for fitting.

An extra charge will be made for fitting to dimensions.

Each tool is boxed separately and includes wrench and one ARMSTRONG High Speed tool bit.

For extra High Speed Tool Bits, see page 30.



No.	For Slotting Machine Inch Stroke	Diameter of Bar Inches	Length Overall Inches	Size of Tool Bit Inches	Approx. Wt. Lb.
91	6 and 8	1 1/2	16	1/2 x 3/4	21.
92	10 and 12	2	22	1/2 x 3/4	55.
93	14 and 16	2 1/4	27	5/8 x 7/8	78.
94	18 and 20	2 1/2	32	3/4 x 1	108.
95	22 and 24	2 3/4	37	7/8 x 1 1/8	152.



ARMSTRONG TOOL HOLDERS

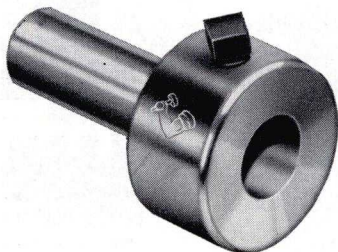
For Screw Machines and Turret Lathes

PLAIN DRILL HOLDERS

Used for holding drills, reamers, counterbores, hollow mills and flat cutters.

Made from special steel, hardened all over; accurately ground shank and bushing hole.

Each tool is boxed separately and includes wrench.



No.	DIMENSIONS OF SHANK			DIMENSIONS OF HEAD			Extreme Length Inches	Approx. Weight Lb.
	Outside Diameter Inches	Diam. Hole Inches	Length Inches	Outside Diameter Inches	Diam. Hole Inches	Depth Hole Inches		
600	$\frac{5}{8}$	$\frac{13}{32}$	2	$1\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	3	.75
601	$\frac{3}{4}$	$\frac{13}{32}$	2	$1\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	3	.88
602	$\frac{7}{8}$	$\frac{15}{32}$	$2\frac{3}{8}$	2	$\frac{7}{8}$	$\frac{7}{8}$	$3\frac{1}{2}$	1.25
603	1	$\frac{17}{32}$	$2\frac{3}{4}$	$2\frac{1}{4}$	1	1	4	1.75
604	$1\frac{1}{4}$	$\frac{25}{32}$	$3\frac{1}{2}$	$2\frac{7}{8}$	$1\frac{1}{4}$	$1\frac{1}{4}$	$5\frac{1}{8}$	3.75
605	$1\frac{1}{2}$	$1\frac{1}{32}$	$4\frac{3}{8}$	3	$1\frac{1}{2}$	$1\frac{1}{2}$	$6\frac{1}{4}$	5.00

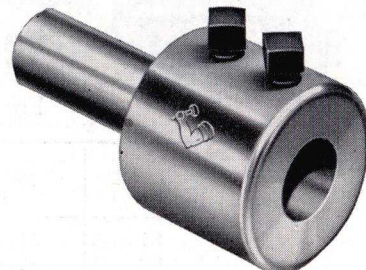
DRILL HOLDERS

Designed to hold either straight shank or taper shank drills. Bushing hole is extra deep and long bushings can be used to reach across several flutes on the drill. A rigid hold on the drill can be obtained under all conditions.

Made from a special steel, hardened all over; shank and bushing hole accurately ground.

Each tool is boxed separately and includes wrench.

No.	DIMENSIONS OF SHANK			DIMENSIONS OF HEAD			Extreme Length Inches	Approx. Wt. Lb.
	Outside Diameter Inches	Diam. Hole Inches	Length Inches	Outside Diameter Inches	Diam. Hole Inches	Depth Hole Inches		
610	$\frac{5}{8}$	$\frac{13}{32}$	$2\frac{1}{8}$	$1\frac{3}{4}$	$\frac{3}{4}$	$1\frac{1}{2}$	$3\frac{7}{8}$	1.38
611	$\frac{3}{4}$	$\frac{13}{32}$	$2\frac{1}{8}$	$1\frac{3}{4}$	$\frac{3}{4}$	$1\frac{1}{2}$	$3\frac{7}{8}$	1.50
612	$\frac{7}{8}$	$\frac{15}{32}$	$2\frac{1}{4}$	2	$\frac{7}{8}$	$1\frac{3}{4}$	$4\frac{1}{4}$	2.00
613	1	$\frac{17}{32}$	$2\frac{3}{8}$	$2\frac{1}{4}$	1	$1\frac{13}{16}$	$4\frac{1}{2}$	2.75
614	$1\frac{1}{4}$	$\frac{25}{32}$	3	$2\frac{7}{8}$	$1\frac{1}{4}$	$2\frac{1}{8}$	$5\frac{1}{2}$	5.13
615	$1\frac{1}{2}$	$1\frac{1}{32}$	$3\frac{5}{8}$	3	$1\frac{1}{2}$	$2\frac{1}{8}$	$6\frac{1}{2}$	6.25

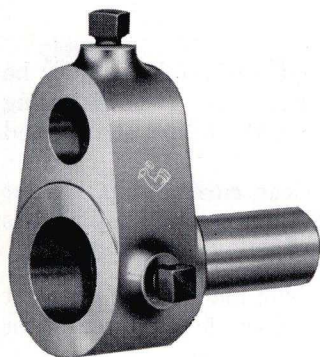


PLAIN TURNERS

Designed to combine a single cutter turning set-up with drilling and boring operations. The top hole takes cutter holders (shown below and on page 23) while the center tool bushing hole locates drills, boring bars and other similar tools.

Plain turners may be held independently or mounted in multiple heads by using tool shank bushings. Each tool is drop forged from a special steel, hardened all over. The center hole and shank are accurately ground.

Each tool is boxed separately and includes wrench.



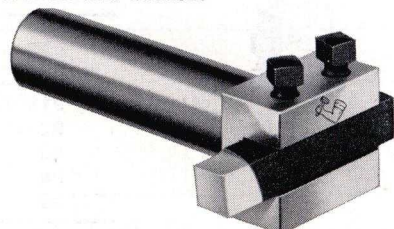
No.	DIMENSIONS OF SHANK			DIMENSIONS OF HEAD			TURNING CAPACITY		Extreme Length Inches	Approx. Weight Lb.
	Outside Diameter Inches	Diam. Hole Inches	Length Inches	Diam. Top Hole Inches	Diam. Center Hole Inches	Depth. Center Hole Inches	Diameter Inches	Max. Length Inches		
620	$\frac{5}{8}$	$\frac{3}{8}$	$2\frac{1}{2}$	$\frac{3}{4}$	$\frac{3}{4}$	$1\frac{1}{8}$	$\frac{1}{2}$ to $1\frac{1}{4}$	2	$3\frac{7}{8}$	1.50
621	$\frac{7}{8}$	$\frac{1}{2}$	$2\frac{1}{2}$	$\frac{3}{4}$	$\frac{3}{4}$	$1\frac{1}{8}$	$\frac{1}{2}$ to $1\frac{1}{4}$	2	$3\frac{7}{8}$	1.75
622	1	$\frac{5}{8}$	3	$\frac{7}{8}$	$1\frac{1}{4}$	$1\frac{1}{8}$	$\frac{1}{2}$ to 2	$2\frac{3}{4}$	$4\frac{1}{2}$	3.00
623	$1\frac{1}{4}$	$\frac{3}{4}$	$3\frac{1}{4}$	1	$1\frac{5}{8}$	$1\frac{3}{8}$	$\frac{3}{4}$ to 2	$3\frac{1}{4}$	$5\frac{1}{8}$	4.75
624	$1\frac{1}{2}$	$\frac{7}{8}$	$3\frac{5}{8}$	$1\frac{1}{4}$	$1\frac{5}{8}$	$1\frac{3}{8}$	$2\frac{1}{4}$ to $3\frac{1}{2}$	$4\frac{1}{4}$	$5\frac{1}{2}$	6.88
625	$1\frac{3}{4}$	1	$3\frac{7}{8}$	$1\frac{1}{2}$	$1\frac{3}{4}$	$1\frac{1}{2}$	$3\frac{3}{4}$ to 5	5	$5\frac{15}{16}$	10.50

STRAIGHT CUTTER HOLDERS

Used for turning, facing, chamfering, boring and similar work. Tool slot will take either square or flat tool bits which may be ground to any required form. Can be held in the plain turners described above or mounted in multiple heads by using tool shank bushings. Tool is moved in or out of the support for length of cut. Hardened all over; accurately ground shank.

Each tool is boxed separately and includes one ARMSTRONG High Speed tool bit and wrench.

No.	SHANK		Size of Tool Bit Inches	Extreme Length, In.	Approx. Weight Lb.
	Diameter Inches	Length Inches			
630	$\frac{5}{8}$	$2\frac{1}{2}$	$\frac{1}{4} \times \frac{1}{4} \times 1\frac{3}{4}$	$3\frac{1}{8}$	.75
631	$\frac{3}{4}$	$2\frac{1}{2}$	$\frac{1}{4} \times \frac{1}{4} \times 1\frac{3}{4}$	$3\frac{1}{8}$	.88
632	$\frac{7}{8}$	$3\frac{1}{4}$	$\frac{3}{8} \times \frac{3}{8} \times 2\frac{5}{8}$	4	1.25
633	1	4	$\frac{1}{2} \times \frac{1}{2} \times 3\frac{1}{4}$	$4\frac{7}{8}$	1.88
634	$1\frac{1}{4}$	$4\frac{3}{4}$	$\frac{5}{8} \times \frac{5}{8} \times 4$	$5\frac{7}{8}$	3.50
635	$1\frac{1}{2}$	$5\frac{1}{2}$	$\frac{3}{4} \times \frac{3}{4} \times 5$	$6\frac{3}{4}$	5.50



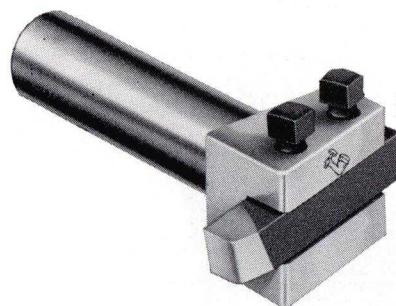


ARMSTRONG TOOL HOLDERS

For Screw Machines and Turret Lathes

ANGLE CUTTER HOLDERS

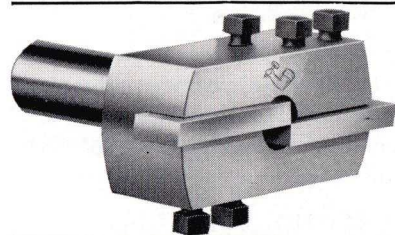
In the ARMSTRONG Angle Cutter Holder, the tool bit is held at an angle of 15° which provides clearance necessary for turning close to a shoulder or to chuck jaws.



Used for turning and boring, this tool can be held in the plain turners described on page 22, or mounted in multiple heads by using tool shank bushings. The tool is moved in or out of the support for

length of cut. Hardened all over; shank accurately ground. Each tool is boxed separately and includes one tool bit and wrench.

No.	SHANK		Size of Tool Bit Inches	Extreme Length Inches	Approx. Weight Lb.
	Diam. Inches	Length Inches			
640	$\frac{5}{8}$	2½	$\frac{1}{4} \times \frac{1}{4} \times 1\frac{3}{4}$	3¼	.88
641	$\frac{3}{4}$	2½	$\frac{1}{4} \times \frac{1}{4} \times 1\frac{3}{4}$	3¼	1.00
642	$\frac{7}{8}$	3¼	$\frac{3}{8} \times \frac{3}{8} \times 2\frac{5}{8}$	4¼	1.38
643	1	4	$\frac{1}{2} \times \frac{1}{2} \times 3\frac{1}{4}$	5¼	2.00
644	1¼	4¾	$\frac{5}{8} \times \frac{5}{8} \times 4$	6¼	3.63
645	1½	5½	$\frac{3}{4} \times \frac{3}{4} \times 5$	7¼	5.50



MULTIPLE CUTTER HOLDERS

Two tool bits can be held in various positions for turning or boring two diameters at the same time and for combining facing or chamfering with turning or boring operations.

This tool can be held in the plain turners described on page 22, or mounted in multiple heads by using tool shank bushings. Tool is moved in or out of the support for length of cut. When setting cutter screws, the sides of tool are kept from springing apart by the tie screws and bushings which should always be used. Tie screws and set screws are interchangeable in various holes so that the tool bits may be set as desired. Hardened all over and shank is accurately ground. Each tool is boxed separately and includes two tool bits and wrench.

No.	SHANK		Size of Tool Bit Inches	Extreme Length Inches	Approx. Weight Lb.
	Diam. Inches	Length Inches			
650	$\frac{5}{8}$	2½	$\frac{1}{4} \times \frac{1}{4} \times 1\frac{3}{4}$	4½	1.13
651	$\frac{3}{4}$	2½	$\frac{1}{4} \times \frac{1}{4} \times 1\frac{3}{4}$	4½	1.25
652	$\frac{7}{8}$	3¼	$\frac{3}{8} \times \frac{3}{8} \times 2\frac{5}{8}$	5¼	2.25
653	1	3¼	$\frac{1}{2} \times \frac{1}{2} \times 3\frac{1}{4}$	6¼	3.38
654	1¼	3½	$\frac{5}{8} \times \frac{5}{8} \times 4$	7½	5.88
655	1½	4½	$\frac{3}{4} \times \frac{3}{4} \times 5$	8½	9.88

FACING TOOLS

ARMSTRONG Facing Tools are used for machining pulleys, gear hubs, flanges and like parts. A solid disc can be faced to the center or the cutters may be ground and adjusted for grooving, recessing, face-forming and counterboring. In conjunction with the latter operations, drills, counterbores, pilots and other tools can be held in the center hole.

Hardened all over. Shank and Center hole are accurately ground. Each tool is boxed separately and includes two ground facing cutters and wrench.

No.	DIMENSIONS OF SHANK			DIMENSIONS OF HEAD			Facing Capacity 0 to Max. Diam. Inches	Extreme Length Inches	Approx. Weight Lb.	High Speed Ground Facing Cutters			
	Out-side Diam. Inches	Diam. Hole Inches	Length Inches	Width Inches	Size of Cutter Inches	Diam. Center Hole Inches				No.	For Tool No.	Size, Inches	Approx. Weight Lb.
660	$\frac{5}{8}$	$\frac{25}{64}$	17/8	2¾	$\frac{1}{4} \times \frac{3}{4}$	$\frac{5}{8}$	0 to 3	3¼	1.38	8455A	660	$\frac{1}{4} \times \frac{3}{4} \times 1\frac{1}{4}$	.06
661	$\frac{3}{4}$	$\frac{25}{64}$	17/8	2¾	$\frac{1}{4} \times \frac{3}{4}$	$\frac{5}{8}$	0 to 3	3¼	1.50	8455B	661	$\frac{1}{4} \times \frac{3}{4} \times 1\frac{1}{4}$	.09
662	$\frac{7}{8}$	$\frac{25}{64}$	27/16	3¼	$\frac{1}{4} \times \frac{3}{4}$	$\frac{5}{8}$	0 to 3½	4	2.38	8455C	662	$\frac{1}{4} \times \frac{3}{4} \times 1\frac{1}{4}$	.13
663	1	$\frac{17}{32}$	2¼	4	$\frac{5}{16} \times \frac{7}{8}$	$\frac{3}{4}$	0 to 4½	4	3.50	8456	663	$\frac{5}{16} \times \frac{7}{8} \times 2\frac{1}{8}$	.19
664	1¼	$\frac{21}{32}$	2½	4¾	$\frac{3}{8} \times 1$	$\frac{7}{8}$	0 to 5¼	5½	7.00	8457A	664	$\frac{3}{8} \times 1 \times 2\frac{1}{2}$	.25
665	1½	$\frac{29}{32}$	3¾	5	$\frac{3}{8} \times 1$	$\frac{7}{8}$	0 to 5¾	5½	7.63	8457B	665	$\frac{3}{8} \times 1 \times 2\frac{5}{8}$	.31

KNURLING TOOLS

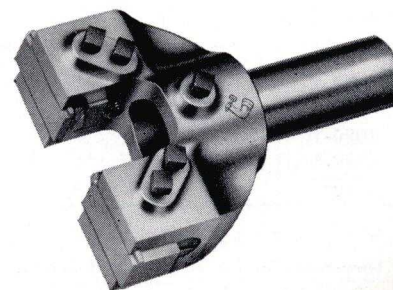
Drop Forged Steel

ARMSTRONG Turret Knurling Tools are designed to hold standard size knurls. Any pattern or pitch knurling may be produced by running out the cross-slides, removing the knurl pins and inserting the knurls required. Knurling capacity of this tool can be quickly adjusted to any diameter within range simply by turning cross-slide feed screws in or out. Cross-slides are locked at proper adjustment by set screws. When necessary a bushing may be used in center

hole to support the work. Each tool is drop forged from a special steel, is accurately machined and hardened throughout. Knurl pins and hob-cut knurls are tempered tool steel.

Each tool is boxed separately and includes one pair of medium diamond knurls with standard face, and wrench.

No.	DIMENSIONS OF SHANK			KNURLING CAPACITY		Max. Width Head Inches	Extreme Length Inches	Approx. Weight Lb.
	Diam. Inches	Diam. Hole Inches	Length Inches	Diameter Inches	Max. Length Inches			
670	$\frac{5}{8}$	$\frac{7}{16}$	2½	$\frac{1}{4}$ to $\frac{3}{4}$	15/8	3½	4½	2.50
671	1	$\frac{7}{16}$	2½	$\frac{1}{4}$ to $\frac{3}{4}$	15/8	3½	4½	2.75
672	1¼	$\frac{21}{32}$	3	$\frac{1}{4}$ to 1	2½	4¾	6½	5.13
673	1½	$\frac{13}{16}$	37/16	$\frac{1}{4}$ to 1½	3¼	6¼	7½	9.75
674	1¾	$\frac{23}{32}$	35/8	$\frac{1}{2}$ to 2	4	7¾	8½	17.00





ACE TOOLS

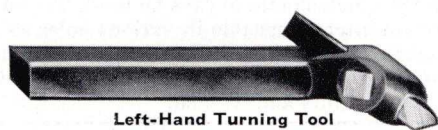
For HOME and SCHOOL SHOPS

ACE Tool Holders are drop forged from special steel, accurately machined, heat treated and hardened. They are especially designed for use in home workshops, school shops or wherever small lathes are used.

ACE TURNING TOOLS



Straight Shank Turning Tool



Left-Hand Turning Tool

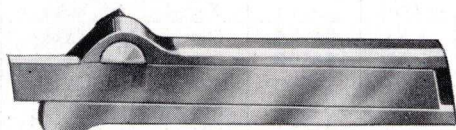


Right-Hand Turning Tool

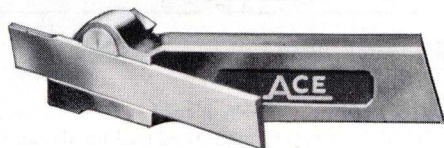
Boxed complete with high speed tool bit and wrench.

No.	Shank Size Inches	*Tool Bit Size Square, In.	For Lathe Size Swing, In.	Approx. Weight Lb.
1010-S	$\frac{5}{16} \times \frac{1}{2}$	$\frac{3}{16}$	6	.25
1010-R	$\frac{5}{16} \times \frac{1}{2}$	$\frac{3}{16}$	6	.25
1010-L	$\frac{5}{16} \times \frac{1}{2}$	$\frac{3}{16}$	6	.25
2010-S	$\frac{3}{8} \times \frac{3}{4}$	$\frac{1}{4}$	9—10	.37
2010-R	$\frac{3}{8} \times \frac{3}{4}$	$\frac{1}{4}$	9—10	.37
2010-L	$\frac{3}{8} \times \frac{3}{4}$	$\frac{1}{4}$	9—10	.37

ACE CUTTING-OFF TOOLS



Straight Shank



Right-Hand Offset

Boxed complete with wrench and high speed beveled cut-off blade.

Cat. No.	Shank Size Inches	†Cut-Off Blade Size Inches	For Lathe Size Swing, In.	Approx. Weight Lb.
1020-R	$\frac{5}{16} \times \frac{1}{2}$	$\frac{3}{32} \times \frac{1}{2}$	6	.37
2020-S	$\frac{3}{8} \times \frac{3}{4}$	$\frac{3}{32} \times \frac{5}{8}$	9—10	.44
2020-R	$\frac{3}{8} \times \frac{3}{4}$	$\frac{3}{32} \times \frac{5}{8}$	9—10	.44

*See page 30, for High Speed Tool Bits for use in Ace Turning Tools.

†See page 30, for High Speed Cut-off Blades for use in Ace Cutting-off Tools.

Ground to shape form cutters for use in Ace Turning Tools are listed on page 31, Set No. 0136S.

Each ACE Tool is a permanent, multi-purpose tool. All take tool bits quickly ground from stock shapes of high speed steel that can be bought anywhere.

ACE metal cutting tools come in two shank sizes.

ACE LATHE TOOL SETS



Set No. 8AA

With an ACE Lathe Tool Set, you are permanently "Tooled up" for any job. Each ACE Lathe Tool Set provides permanent ACE Tool Holders for every standard lathe operation.

ACE SET NO. 8AA

Shank size, $\frac{3}{8} \times \frac{3}{4}$ ". Furnished mounted on a plywood panel or in a steel case fitted to hold tools in place. Set consists of 1 each of the tools listed below. Approximate weight 7 lbs.

No.	Description
2010-S	Straight Shank Turning Tool
2010-R	Right-Hand Offset Turning Tool
2010-L	Left-Hand Offset Turning Tool
2080-B	Boring Tool with Plain Bar
2020-S	Straight Cutting-off Tool
2020-R	Right-Hand Offset Cutting-off Tool
2040	Knurling Tool
2050	Threading Tool

ACE SET NO. 8AF

Same Set as No. 8AA, but with No. 2080 Boring Tool replacing No. 2080-B Boring Tool. Approximate weight 7 lbs.

ACE SET NO. 5A

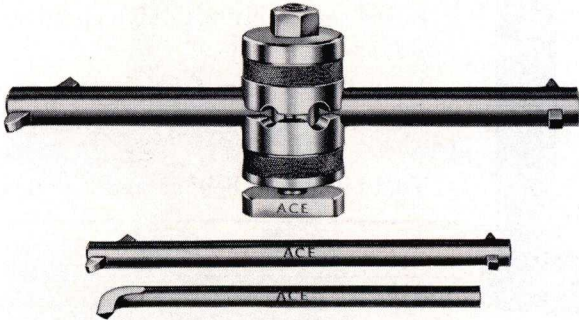
Composed of the following five tools: Nos. 2010-S, 2020-R, 2040, 2050, 2080,—complete in metal box. Approximate weight 4.50 lbs.



ACE TOOLS

For HOME and SCHOOL SHOPS

ACE 3-BAR BORING TOOL



For boring and internal threading. Holder and T-Slot Bolt Head replace the lathe tool post to obtain the most rigid support possible for boring bars. A slight turn of one nut releases or fastens both bar and holder. Complete with three wrenches, four high speed tool bits and three boring bars: one $\frac{3}{8} \times 7''$ forged type boring bar; one $\frac{1}{2} \times 8''$ broached bar for $\frac{3}{16}''$ square tool bit and one $\frac{3}{4} \times 11''$ broached bar for $\frac{1}{4}''$ square tool bit. Each bar has one end broached at a 90° angle and the opposite end broached at a 45° angle.

Note: Bolt head and bottom part of holder must be fitted to lathe dimensions. ACE 3-Bar Boring Tools are furnished specially fitted for use with the following popular lathes.

No.	For Lathe	Weight Lb.
1456	South Bend Workshop Lathe	6
1457	Logan 10" Lathe	6
1458	Sheldon 10" Lathe	6
1459	Atlas 10" Lathe	6

ACE BROACHED BORING BARS



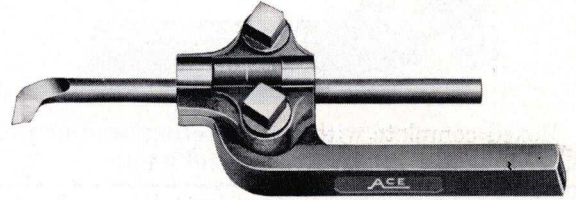
Opposite ends broached at 45° and 90° angles. Complete with two high speed tool bits and wrench.

No.	BAR SIZE		Tool Bit Size Square, Inches	Weight Lb.
	Diam. Inches	Length Inches		
0511A	$\frac{1}{2}$	8	$\frac{3}{16}$	.53
0513A	$\frac{3}{4}$	11	$\frac{1}{4}$	1.44

ACE BORING TOOL BITS

No.	Bit Size Square, Inches	For Use in Bar No.	Weight Lb.
2322-A	$\frac{3}{16}$	0511A	.02
2324-A	$\frac{1}{4}$	0513A	.03

ACE STYLE D BORING TOOLS

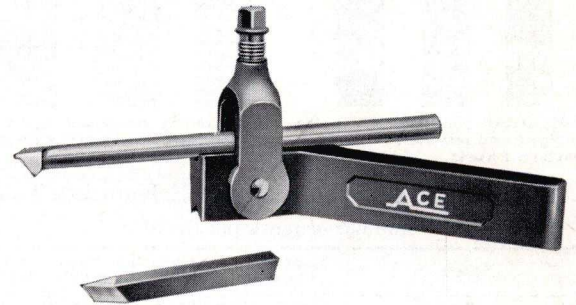


For boring and internal threading. With reversible bar clamp. Furnished complete with forged or broached bar. Holder will accommodate $\frac{1}{4}$ to $\frac{1}{2}''$ bars.

No.	Shank Size Inches	Furnished with Bar Inches	For Lathe Inches	Weight Lb.
*2080	$\frac{3}{8} \times \frac{3}{4}$	$\frac{1}{4} \times 5$ Forged	9—10	.12
2080-B	$\frac{3}{8} \times \frac{3}{4}$	$\frac{1}{2} \times 8$ Broached	9—10	.20

*Illustrated.

ACE BORING TOOL HOLDER



For Turning, Boring and internal Threading. Boxed complete with forged boring bar, $\frac{1}{4}''$ square high speed tool bit and wrench.

Cat. No.	Shank Size	Bar Size	For Lathes	Weight
*1030	$\frac{5}{16} \times \frac{1}{2}$	$\frac{1}{4} \times 5''$	6"	.5
2030	$\frac{3}{8} \times \frac{3}{4}$	$\frac{1}{4} \times 5''$	9—10"	.56

Holder is reversible for use either right or left hand. Will accommodate boring bars $\frac{1}{8}$ to $\frac{7}{16}''$ diameter.

ACE FORGED BORING BARS



No.	BAR SIZE		Lathe Size Inches	Weight Lb.
	Diam. Inches	Length Inches		
8140-A	$\frac{1}{8}$	4	9—10, 6	.02
8141-A	$\frac{3}{16}$	$4\frac{1}{2}$	9—10, 6	.03
8142-A	$\frac{1}{4}$	5	9—10, 6	.09
8143-A	$\frac{5}{16}$	6	9—10, 6	.14
8144-A	$\frac{3}{8}$	7	9—10, 6	.22
8145-A	$\frac{7}{16}$	8	9—10, 6	.34
0383	Set of 6 1 of each, $\frac{1}{8}$ to $\frac{7}{16}$		9—10, 6	.93



ACE TOOLS

For HOME and SCHOOL SHOPS

ACE KNURLING TOOLS



Boxed complete with self-centering head and one pair of medium 21 pitch, diamond knurls.

No.	Shank Size, In.	Lathe Size, In.	Wt., Lb.
1040	$\frac{5}{16} \times \frac{1}{2}$	6	.37
2040	$\frac{3}{8} \times \frac{3}{4}$	9—10	.44

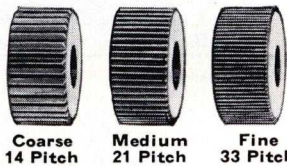
ACE KNURLS

Diamond Pattern

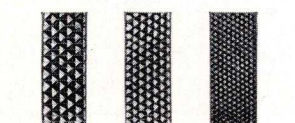


Coarse 14 Pitch
Medium 21 Pitch
Fine 33 Pitch

Straight Line Pattern



Coarse 14 Pitch
Medium 21 Pitch
Fine 33 Pitch



Knurling produced by pairs of right and left-hand diamond pattern knurls.



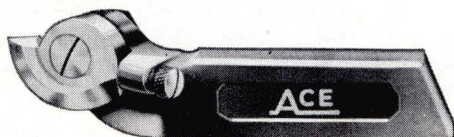
Knurling produced by pairs of straight line pattern knurls.

Furnished in pairs only. Fit ACE Knurling Tools.

Note: Pitch = number of teeth per lineal inch.

Pattern	Coarse 14 Pitch	Medium 21 Pitch	Fine 33 Pitch	Wt. Lb.
Diamond Pattern	8221-A	8224-A	8227-A	.04
Straight Line Pattern	8261-A	8264-A	8267-A	.04

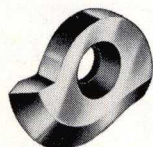
ACE THREADING TOOLS



Boxed complete with wrench and one high speed 60° Sharp V-form thread cutter, ground ready for use.

No.	Shank Size, In.	Lathe Size, In.	Wt., Lb.
1050	$\frac{5}{16} \times \frac{1}{2}$	6	.38
2050	$\frac{3}{8} \times \frac{3}{4}$	9—10	.44

ACE FORMED THREADING CUTTERS



Sharp V 60° formed threading cutters will always be furnished unless American National Coarse (U.S. Std.) or modified British Standard Whitworth (B.S.W.) are specified.

Flat top grinding only is required to sharpen.

No.	For Ace Threading Tool Nos.	Wt., Lb.
8160	2050, 1050	.04

ACE SHAPER TOOL

Boxed separately with high speed steel tool bit and wrench.

Drop forged from special steel, accurately machined, heat treated and hardened.

Tool bit can be held at various angles.



No.	Shank Size Inches	Bit Size Square, Inches	Weight Lb.
2060	$\frac{3}{8} \times \frac{7}{8} \times 5\frac{1}{2}$	$\frac{1}{4}$	.88

ACE EXTENSION SHAPER TOOL

Exceptionally rigid, especially adapted for cutting internal keyways and for any work on the shaper requiring extra clearance. Drop forged from special steel, heat treated and hardened. Polished steel bar.

Diameter of bar, $\frac{1}{2}$ inch.

Internal keyseating capacity, $5\frac{1}{2}$ in.



Boxed complete with bar, high speed tool bit and wrench.

No.	Shank Size Inches	Bit Size Square, Inches	Weight Lb.
2046	$\frac{3}{8} \times \frac{7}{8} \times 5\frac{1}{2}$	$\frac{3}{16}$	.94

ACE LATHE DOGS

For working on centers without chuck. Drop forged with special steel screws hardened at point.



No.	Capacity, In.	Wt., Lb.
101	$\frac{3}{8}$	.25
201	$\frac{1}{2}$	.25
301	$\frac{3}{4}$	.37
401	1	.53
501	$1\frac{1}{4}$	.81
601	$1\frac{1}{2}$	.62

ACE CLAMP LATHE DOGS

Drop forged of steel, machined and hardened. Under face of screw heads is convex which allows considerable tilting without binding screws.



No.	Capacity Between Screws, Inches	Wt. Lb.
2011	$1\frac{3}{4}$	.53
2012	$2\frac{1}{4}$	.75



ARMSTRONG IMPROVED LATHE TOOL POSTS

The ARMSTRONG Improved Lathe Tool Post combines the strength and holding power of the strap and stud tool clamp with the convenience of the "open side" and ordinary set screw tool post.

Points of Superiority

It is stronger and stiffer than the ordinary tool post; will not slip or chatter and consequently will do more accurate work.

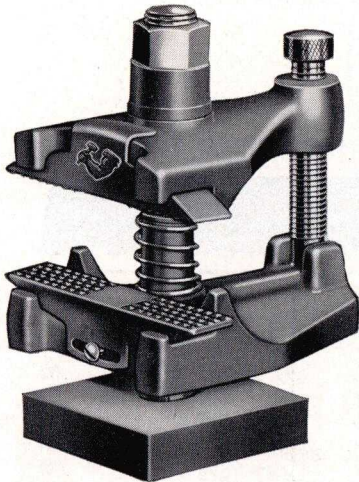
No side projection, peculiarly adapted to working close up to chuck.

It has a great range of adjustment without loss of holding power as the rocker jaws adjust themselves on parallel lines.

Open side design permits rapid and convenient change and adjustment of tools.

It will not cut or tear the tool shank, and is therefore peculiarly adapted to use in connection with tool holders. The body parts and jaws are drop forged of steel and hardened. Other parts are bar steel.

Each tool post is boxed separately and includes wrench.



No.	For Tools Size Inches	For Lathes Swing, Inches	Approx. Wt., Lb.
1-T	$\frac{1}{2} \times 1\frac{1}{8}$ and Less	12 to 14	5.0
2-T	$\frac{5}{8} \times 1\frac{3}{8}$ and $\frac{3}{4} \times 1\frac{5}{8}$	16 to 18	8.5
3-T	$\frac{3}{4} \times 1\frac{3}{8}$ and $\frac{7}{8} \times 1\frac{3}{4}$	20 to 22	11.5
4-T	$\frac{7}{8} \times 1\frac{3}{4}$ and 1 x 2	24 to 32	18.0

Note: Bolt head and base forging are made large enough to allow for fitting. This is made necessary by the variation in size of T slots and center heights in lathes of different manufacture. Fitting—An extra charge will be made for fitting tool post to individual lathe dimensions.

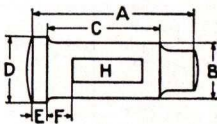
ARMSTRONG TOOL POST FITTINGS

Unfinished

ARMSTRONG Tool Post Fittings are drop forged of selected steel—not machined or heat treated.

TOOL POSTS

Openings punched out—screw hole not drilled.



No.	Length A Inches	BODY		BASE		Base to Opening F Inches	Opening Size H Inches	For Use with Wedge No.	For Use with Ring No.	Approx. Wt. Lb.
		Diam. B Inches	Lgth. C Inches	Diam. D Inches	Lgth. E Inches					
5	$2\frac{13}{16}$	$1\frac{1}{32}$	2	$1\frac{7}{32}$	$\frac{5}{16}$	$\frac{7}{16}$	$1\frac{5}{16} \times 7\frac{7}{16}$	5	5	.44
10	$4\frac{1}{16}$	$1\frac{1}{4}$	$2\frac{7}{8}$	$1\frac{5}{8}$	$\frac{1}{4}$	$\frac{1}{2}$	$1\frac{15}{16} \times 1\frac{19}{32}$	10	10	.81
20	$4\frac{9}{16}$	$1\frac{5}{8}$	$3\frac{1}{4}$	$2\frac{1}{8}$	$\frac{7}{16}$	$\frac{13}{16}$	$1\frac{7}{8} \times 1\frac{11}{16}$	15, 18	11	2.10
23	5	$1\frac{7}{16}$	$3\frac{1}{2}$	$1\frac{7}{8}$	$\frac{5}{16}$	$\frac{5}{8}$	$2\frac{1}{2} \times 2\frac{1}{32}$	15	14	1.60
28	$5\frac{3}{16}$	$1\frac{9}{16}$	$3\frac{11}{16}$	$2\frac{1}{16}$	$\frac{5}{16}$	$\frac{5}{8}$	$2\frac{11}{16} \times 1\frac{11}{16}$	15, 18	18	2.10
30	$5\frac{1}{4}$	$1\frac{13}{16}$	$3\frac{3}{4}$	$2\frac{3}{16}$	$\frac{1}{2}$	$1\frac{5}{16}$	$2\frac{1}{8} \times 3\frac{3}{4}$	18, 20	20	3.00
40	$6\frac{5}{16}$	$2\frac{1}{16}$	$4\frac{3}{8}$	$2\frac{5}{8}$	$\frac{9}{16}$	$1\frac{3}{16}$	$2\frac{1}{2} \times 7\frac{7}{8}$	30, 40	30, 40	4.70
50	$7\frac{3}{8}$	$2\frac{1}{4}$	5	$2\frac{15}{16}$	$\frac{5}{8}$	$1\frac{3}{8}$	$2\frac{7}{8} \times 1\frac{15}{16}$	60	60	6.60
60	$8\frac{3}{4}$	$2\frac{31}{32}$	6	$3\frac{5}{8}$	$\frac{3}{4}$	$1\frac{1}{2}$	$3\frac{3}{16} \times 1$	..	..	13.60

TOOL POST WEDGES

For Changing Angles of Lathe Tools



No.	Lgth. In.	Width Top In.	Width Ex-treme In.	Ex-treme Thick-ness In.	Radius, In.	For Use with Post No.	For Use with Ring No.	Approx. Wt. Lb.
5	$2\frac{13}{32}$	$\frac{13}{32}$	$\frac{1}{2}$	$1\frac{1}{32}$	3	5	5	.06
10	3	$\frac{9}{16}$	$\frac{21}{32}$	$\frac{31}{64}$	$2\frac{7}{8}$	10	10	.13
11	$3\frac{3}{8}$	$\frac{1}{2}$	$\frac{19}{32}$	$\frac{25}{64}$	$4\frac{5}{8}$	20	11	.09
15	$3\frac{3}{8}$	$\frac{5}{8}$	$\frac{23}{32}$	$\frac{7}{16}$	$4\frac{5}{8}$	20	11	.16
18	$3\frac{7}{8}$	$1\frac{1}{16}$	$\frac{3}{4}$	$\frac{15}{32}$	$4\frac{1}{2}$	30	11, 20	.18
20	$3\frac{7}{8}$	$1\frac{1}{16}$	$\frac{13}{16}$	$\frac{17}{32}$	$4\frac{3}{4}$	30	20	.22
30	$4\frac{3}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	$\frac{1}{2}$	$5\frac{1}{2}$	40	30	.25
40	$4\frac{7}{8}$	$\frac{13}{16}$	$\frac{15}{16}$	$\frac{21}{32}$	$5\frac{3}{4}$	40	40	.44
60	$5\frac{1}{4}$	$\frac{15}{16}$	$\frac{13}{32}$	$\frac{3}{4}$	6	50	60	.63
65	$5\frac{9}{16}$	$\frac{7}{8}$	$1\frac{1}{32}$	$\frac{29}{32}$	5	..	..	.75

TOOL POST RINGS

For Changing Angles of Lathe Tools



No.	Diam. Out-side In.	Diam. Hole In.	Thick-ness Edge In.	Radius of Con-cave In.	For Use with Post No.	For Use with Wedge No.	Approx. Wt. Lb.
5	$2\frac{1}{4}$	$1\frac{1}{16}$	$\frac{3}{8}$	3	5	5	.25
10	$2\frac{15}{16}$	$1\frac{5}{16}$	$\frac{7}{16}$	$2\frac{7}{8}$	10	10	.50
11	3	$1\frac{5}{8}$	$\frac{7}{16}$	$4\frac{5}{8}$	20	11, 15	.50
14	$3\frac{3}{16}$	$1\frac{7}{16}$	$\frac{5}{8}$	$4\frac{5}{8}$	23	18, 20	.75
18	$3\frac{7}{16}$	$1\frac{9}{16}$	$\frac{11}{16}$	$4\frac{1}{2}$	28	18	1.30
20	$3\frac{1}{2}$	$1\frac{3}{4}$	$\frac{9}{16}$	$4\frac{3}{4}$	30	18, 20	.94
30	$3\frac{1}{2}$	2	$\frac{3}{4}$	$5\frac{1}{2}$	40	30	1.30
40	4	2	$\frac{3}{4}$	$5\frac{3}{4}$	40	40	1.80
60	$4\frac{1}{2}$	$2\frac{3}{16}$	$\frac{3}{4}$	6	50	60	2.20



ARMSTRONG HIGH SPEED GROUND TOOL BITS

ARMSTRONG High Speed Ground Tool Bits are made of a superior grade of high speed steel. Bits are accurately ground on all four sides.

Packaged for convenient handling with proper marking for quick identification.

SQUARES

ENDS BEVELLED 10°

TUNGSTEN MOLY HIGH SPEED STEEL

2379 HIGH SPEED ARMSTRONG $\frac{3}{8}$

No.	Size Square, Inches	Overall Length Inches	Approx. Weight Lb.
2376	$\frac{3}{16}$	2	.02
2377	$\frac{1}{4}$	$2\frac{1}{2}$	.03
2378	$\frac{5}{16}$	$2\frac{1}{2}$	.06
2379	$\frac{3}{8}$	3	.13
2380	$\frac{7}{16}$	$3\frac{1}{2}$	.19
2381	$\frac{1}{2}$	4	.25
2382	$\frac{5}{8}$	$4\frac{1}{2}$	.50
2383	$\frac{3}{4}$	5	.88
2384	$\frac{7}{8}$	6	1.31
2385	1	7	1.81
2386	$1\frac{1}{8}$	8	2.69
2387	$1\frac{1}{4}$	9	4.13

COBALT HIGH SPEED STEEL

2391 HIGH SPEED COBALT ARMSTRONG $\frac{3}{8}$

No.	Size Square Inches	Overall Length Inches	Approx. Weight Lb.
2388	$\frac{3}{16}$	2	.02
2389	$\frac{1}{4}$	$2\frac{1}{2}$	.03
2390	$\frac{5}{16}$	$2\frac{1}{2}$	.06
2391	$\frac{3}{8}$	3	.13
2392	$\frac{7}{16}$	$3\frac{1}{2}$	.19
2393	$\frac{1}{2}$	4	.25
2394	$\frac{5}{8}$	$4\frac{1}{2}$	.50
2395	$\frac{3}{4}$	5	.88
2396	$\frac{7}{8}$	6	1.31
2397	1	7	1.81
2398	$1\frac{1}{8}$	8	2.69
2399	$1\frac{1}{4}$	9	4.13

RECTANGULARS

SQUARE ENDS

TUNGSTEN MOLY HIGH SPEED STEEL

2709 HIGH SPEED ARMSTRONG $\frac{3}{8}$ x $\frac{1}{2}$

No.	Size Inches	Overall Length Inches	Approx. Weight Lb.
2701	$\frac{1}{4}$ x $\frac{3}{8}$	$2\frac{1}{2}$	.06
2702	$\frac{1}{4}$ x $\frac{1}{2}$	3	.13
2703	$\frac{1}{4}$ x $\frac{1}{2}$	4	.17
2704	$\frac{1}{4}$ x $\frac{1}{2}$	6	.22
2705	$\frac{1}{4}$ x $\frac{1}{2}$	10	.37
2706	$\frac{5}{16}$ x $\frac{7}{16}$	3	.13
2707	$\frac{5}{16}$ x $\frac{1}{2}$	3	.15
2708	$\frac{3}{8}$ x $\frac{1}{2}$	3	.17
2709	$\frac{3}{8}$ x $\frac{1}{2}$	4	.22
2710	$\frac{3}{8}$ x $\frac{1}{2}$	6	.32
2711	$\frac{3}{8}$ x $\frac{5}{8}$	4	.27
2712	$\frac{3}{8}$ x $\frac{5}{8}$	5	.34
2713	$\frac{3}{8}$ x $\frac{5}{8}$	6	.47
2714	$\frac{3}{8}$ x $\frac{3}{4}$	4	.32
2715	$\frac{3}{8}$ x $\frac{3}{4}$	6	.50
2716	$\frac{3}{8}$ x $\frac{3}{4}$	14	1.15
2717	$\frac{7}{16}$ x $\frac{3}{4}$	6	.56
2718	$\frac{1}{2}$ x $\frac{3}{4}$	4	.44
2719	$\frac{1}{2}$ x $\frac{3}{4}$	6	.67
2720	$\frac{1}{2}$ x 1	8	1.18
2721	$\frac{5}{8}$ x $\frac{3}{4}$	5	.69
2722	$\frac{5}{8}$ x $\frac{7}{8}$	6	.94
2723	$\frac{3}{4}$ x 1	6	1.28
2724	$\frac{7}{8}$ x $1\frac{1}{8}$	7	1.30

COBALT HIGH SPEED STEEL

2739 HIGH SPEED COBALT ARMSTRONG $\frac{3}{8}$ x $\frac{1}{2}$

No.	Size Inches	Overall Length Inches	Approx. Weight Lb.
2731	$\frac{1}{4}$ x $\frac{3}{8}$	$2\frac{1}{2}$	.06
2732	$\frac{1}{4}$ x $\frac{1}{2}$	3	.13
2733	$\frac{1}{4}$ x $\frac{1}{2}$	4	.17
2734	$\frac{1}{4}$ x $\frac{1}{2}$	6	.22
2735	$\frac{1}{4}$ x $\frac{1}{2}$	10	.37
2736	$\frac{5}{16}$ x $\frac{7}{16}$	3	.13
2737	$\frac{5}{16}$ x $\frac{1}{2}$	3	.15
2738	$\frac{3}{8}$ x $\frac{1}{2}$	3	.15
2739	$\frac{3}{8}$ x $\frac{1}{2}$	4	.22
2740	$\frac{3}{8}$ x $\frac{1}{2}$	6	.32
2741	$\frac{3}{8}$ x $\frac{5}{8}$	4	.27
2742	$\frac{3}{8}$ x $\frac{5}{8}$	5	.34
2743	$\frac{3}{8}$ x $\frac{5}{8}$	6	.47
2744	$\frac{3}{8}$ x $\frac{3}{4}$	4	.32
2745	$\frac{3}{8}$ x $\frac{3}{4}$	6	.50
2746	$\frac{3}{8}$ x $\frac{3}{4}$	14	1.14
2747	$\frac{7}{16}$ x $\frac{3}{4}$	6	.56
2748	$\frac{1}{2}$ x $\frac{3}{4}$	4	.44
2749	$\frac{1}{2}$ x $\frac{3}{4}$	6	.67
2750	$\frac{1}{2}$ x 1	8	1.18
2751	$\frac{5}{8}$ x $\frac{3}{4}$	5	.69
2752	$\frac{5}{8}$ x $\frac{7}{8}$	6	.94
2753	$\frac{3}{4}$ x 1	6	1.28
2754	$\frac{7}{8}$ x $1\frac{1}{8}$	7	1.30



ARMSTRONG HIGH SPEED GROUND CUT-OFF BLADES

TUNGSTEN MOLY HIGH SPEED STEEL



ARMSTRONG High Speed Ground Cut-off Blades are made of a superior grade of high speed steel. They come beveled, ready for use in ARMSTRONG Cutting-off Tools and with sides, top and bottom edges ground.

†For Left-Hand Tools

No.	For Tool Nos.	Size Inches	Overall Length Inches	Approx. Weight Lb.
2420	29-L	$\frac{3}{32} \times \frac{1}{2}$	$4\frac{1}{2}$	.06
2421	30-L	$\frac{3}{32} \times \frac{5}{8}$	5	.13
2422	31-L	$\frac{1}{8} \times \frac{3}{4}$	5	.19
2423	32-L	$\frac{1}{8} \times \frac{7}{8}$	6	.25
2424	33-L	$\frac{3}{16} \times 1$	$6\frac{1}{2}$	.31
2425	34-L	$\frac{3}{16} \times 1\frac{1}{8}$	7	.44
2426	35-L	$\frac{1}{4} \times 1\frac{1}{4}$	7	.88
2427	36-L	$\frac{1}{4} \times 1\frac{3}{8}$	7	.94

†Also for use in Left-Hand Spring Cutting-off tools.

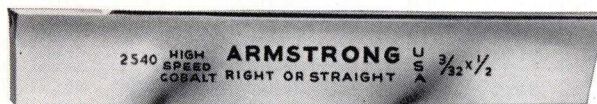
*For Straight and Right-Hand Tools

No.	For Tool Nos.	Size Inches	Overall Length Inches	Approx. Weight Lb.
2410	19, 29-R	$\frac{3}{32} \times \frac{1}{2}$	$4\frac{1}{2}$	.06
2411	20, 30-R	$\frac{3}{32} \times \frac{5}{8}$	5	.13
2412	21, 31-R	$\frac{1}{8} \times \frac{3}{4}$	5	.19
2413	22, 32-R	$\frac{1}{8} \times \frac{7}{8}$	6	.25
2414	23, 33-R	$\frac{3}{16} \times 1$	$6\frac{1}{2}$	.31
2415	24, 34-R	$\frac{3}{16} \times 1\frac{1}{8}$	7	.44
2416	25, 35-R	$\frac{1}{4} \times 1\frac{1}{4}$	7	.88
2417	26, 36-R	$\frac{1}{4} \times 1\frac{3}{8}$	7	.94

*Also for use in Straight and Right-Hand Spring Cutting-off tools.

ARMSTRONG COBALT HIGH SPEED GROUND CUT-OFF BLADES

COBALT HIGH SPEED STEEL



ARMSTRONG Cobalt High Speed Ground Cut-off Blades are made of a superior grade of Cobalt High Speed steel. They come beveled, ready for use in ARMSTRONG Cutting-off Tools and with sides, top and bottom edges ground.

*For Straight and Right-Hand Tools

No.	For Tool Nos.	Size Inches	Overall Length Inches	Approx. Weight Lb.
2540	19, 29-R	$\frac{3}{32} \times \frac{1}{2}$	$4\frac{1}{2}$	.06
2541	20, 30-R	$\frac{3}{32} \times \frac{5}{8}$	5	.12
2542	21, 31-R	$\frac{1}{8} \times \frac{3}{4}$	5	.19
2543	22, 32-R	$\frac{1}{8} \times \frac{7}{8}$	6	.25
2544	23, 33-R	$\frac{3}{16} \times 1$	$6\frac{1}{2}$	.31
2545	24, 34-R	$\frac{3}{16} \times 1\frac{1}{8}$	7	.44
2546	25, 35-R	$\frac{1}{4} \times 1\frac{1}{4}$	7	.88
2547	26, 36-R	$\frac{1}{4} \times 1\frac{3}{8}$	7	.94

*Also for use in Straight and Right-Hand Spring Cutting-off Tools.

†For Left-Hand Tools

No.	For Tool Nos.	Size Inches	Overall Length Inches	Approx. Weight Lb.
2550	29-L	$\frac{3}{32} \times \frac{1}{2}$	$4\frac{1}{2}$	.06
2551	30-L	$\frac{3}{32} \times \frac{5}{8}$	5	.12
2552	31-L	$\frac{1}{8} \times \frac{3}{4}$	5	.19
2553	32-L	$\frac{1}{8} \times \frac{7}{8}$	6	.25
2554	33-L	$\frac{3}{16} \times 1$	$6\frac{1}{2}$	.31
2555	34-L	$\frac{3}{16} \times 1\frac{1}{8}$	7	.44
2556	35-L	$\frac{1}{4} \times 1\frac{1}{4}$	7	.88
2557	36-L	$\frac{1}{4} \times 1\frac{3}{8}$	7	.94

†Also for use in Left-Hand Spring Cutting-off Tools.



ARMSTRONG UNGROUND TOOL BITS

Require Grinding Only to Make Them Ready for Use in ARMSTRONG Tool Holders

ARMSTRONG Unground Tool Bits are made of a superior grade of high speed steel. Carefully heat treated, hardened, tempered and tested. When ordering, please specify catalog number.

For Turning Tools



No.	Size Square, Inches	Overall Length Inches	Approx. Weight Lb.
2301	$\frac{3}{16}$	2	.02
2302	$\frac{1}{4}$	$2\frac{1}{2}$	.03
2303	$\frac{5}{16}$	$2\frac{1}{2}$	.06
2304	$\frac{3}{8}$	3	.13
2305	$\frac{7}{16}$	$3\frac{1}{2}$	.19
2306	$\frac{1}{2}$	4	.25
2307	$\frac{5}{8}$	$4\frac{1}{2}$	.50
2308	$\frac{3}{4}$	5	.88
2309	$\frac{7}{8}$	6	1.31
2310	1	7	1.81
2311	$1\frac{1}{8}$	8	2.69
2312	$1\frac{1}{4}$	9	4.13

For Planer, Slotter and Gang Planer Tools



No.	Size Plats, In.	Overall Length, In.	Approx. Wt., Lb.
2351	$\frac{1}{4} \times \frac{3}{8}$	$2\frac{1}{2}$	.11
2352	$\frac{5}{16} \times \frac{7}{16}$	3	.15
2353	$\frac{3}{8} \times \frac{1}{2}$	$3\frac{1}{2}$	.19
2354	$\frac{1}{2} \times \frac{3}{4}$	$4\frac{1}{4}$	.50
2355	$\frac{5}{8} \times \frac{7}{8}$	5	.75
2356	$\frac{3}{4} \times 1$	6	1.25
2357	$\frac{7}{8} \times 1\frac{1}{8}$	7	2.00

For Boring Tools



No.	Size Square Inches	Overall Length Inches	Approx. Weight Lb.
2322	$\frac{3}{16}$	$1\frac{1}{4}$	.01
2324	$\frac{1}{4}$	$1\frac{3}{4}$	.02
2326	$\frac{5}{16}$	$2\frac{1}{4}$	.05
2328	$\frac{3}{8}$	$2\frac{5}{8}$	.11
2330	$\frac{7}{16}$	$2\frac{7}{8}$	.15
2332	$\frac{1}{2}$	$3\frac{1}{4}$	.20
2334	$\frac{5}{8}$	4	.40

ARMSTRONG UNGROUND BLADES

High Speed Steel

Ready for Use in ARMSTRONG Cutting-Off and Side Tools



ARMSTRONG Unground Blades are made of a superior grade of high speed steel, are heat treated, hardened and ready for use in ARMSTRONG Cutting-off and Side Tools. When ordering, please specify catalog number.

Cut-Off Blades

Straight and Right-Hand		Left-Hand		Size Inches	Length Overall Inches	Approx. Weight Lb.
No.	*For Tool Nos.	No.	†For Tool Nos.			
2401	19, 29-R	2451	29-L	$\frac{3}{32} \times \frac{1}{2}$	$4\frac{1}{2}$	.06
2402	20, 30-R	2452	30-L	$\frac{3}{32} \times \frac{5}{8}$	5	.13
2403	21, 31-R	2453	31-L	$\frac{1}{8} \times \frac{3}{4}$	5	.19
2404	22, 32-R	2454	32-L	$\frac{1}{8} \times \frac{7}{8}$	6	.25
2405	23, 33-R	2455	33-L	$\frac{3}{16} \times 1$	$6\frac{1}{2}$	.31
2406	24, 34-R	2456	34-L	$\frac{3}{16} \times 1\frac{1}{8}$	7	.44
2407	25, 35-R	2457	35-L	$\frac{1}{4} \times 1\frac{1}{4}$	7	.88
2408	26, 36-R	2458	36-L	$\frac{1}{4} \times 1\frac{3}{8}$	7	.94

*Also for use in ARMSTRONG Straight and Right-Hand Spring Cutting-off Tools.

†Also for use in ARMSTRONG Left-Hand Spring Cutting-off Tools.

Side Tool Blades

Right-Hand		Left-Hand		Size Inches	Length Overall Inches	Approx. Weight Lb.
No.	For Tool Nos.	No.	For Tool Nos.			
2621	69-R, 79-R	2511	69-L, 79-L	$\frac{1}{8} \times \frac{1}{2}$	$4\frac{1}{2}$	.06
2622	70-R, 80-R	2512	70-L, 80-L	$\frac{5}{32} \times \frac{5}{8}$	5	.13
2623	71-R, 81-R	2513	71-L, 81-L	$\frac{3}{16} \times \frac{3}{4}$	6	.19
2624	72-R, 82-R	2514	72-L, 82-L	$\frac{1}{4} \times \frac{7}{8}$	7	.31
2625	73-R, 83-R	2515	73-L, 83-L	$\frac{5}{16} \times 1$	8	.50
2626	74-R, 84-R	2516	74-L, 84-L	$\frac{3}{8} \times 1\frac{1}{4}$	9	.75
2627	75-R, 85-R	2517	75-L, 85-L	$\frac{7}{16} \times 1\frac{3}{8}$	10	1.13
2628	76-R, 86-R	2518	76-L, 86-L	$\frac{1}{2} \times 1\frac{1}{2}$	11	1.63

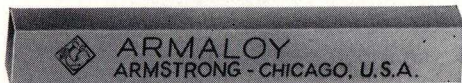


ARMSTRONG ARMALLOY TOOL BITS AND CUT-OFF BLADES

"Cast-Alloy"

ARMSTRONG ARMALLOY Tool Bits and Cut-Off Blades are made from an improved "cast alloy" with a hardness between that of the best high speed steels and the sintered carbides. ARMALLOY may be used for both roughing and finishing cuts in practically all machining operations on steel, malleable iron, cast iron, non-ferrous metals, rubber and plastics.

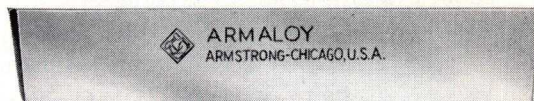
ARMALLOY TOOL BITS



ARMALLOY Tool Bits come ready to grind to cutter shape. Each is a finished tool surface ground to exact size to fit the corresponding ARMSTRONG "C-A" Tool Holder. Specify catalog number.

No.	Size Square Inches	Overall Length Inches	For Tool Holder Nos.	Approx. Weight Lb.
2641	1/4	2 1/8	XX-0-S, XX-0-L, XX-0-R	.03
2642	5/16	2 1/2	XX-1-S, XX-1-L, XX-1-R	.11
2643	3/8	3	XX-2-S, XX-2-L, XX-2-R	.13
2644	7/16	3 1/2	XX-3-S, XX-3-L, XX-3-R	.18
2645	1/2	4	XX-4-S, XX-4-L, XX-4-R	.31
2646	5/8	4 1/2	XX-5-S, XX-5-L, XX-5-R	.56
2647	3/4	5	.....	.88

ARMALLOY CUT-OFF BLADES



ARMALLOY Cut-off Blades are designed for use in standard ARMSTRONG cutting-off tools. They come ground to shape and are of "beveled" design, tapered on both sides for clearance. Sides, top and bottom edges ground. Order by number.

No.	Size Inches	Overall Length Inches	For Cut-Off Tool Nos.	Approx. Weight Lb.
2669	1/8x 3/4	6	21, 31-L, 31-R	.25
2670	1/8x 7/8	6	22, 32-L, 32-R	.33
2671	3/16x1	6	23, 33-L, 33-R	.43
2672	3/16x1 1/8	6	24, 34-L, 34-R	.48
2673	1/4x1 1/4	6	25, 35-L, 35-R	.66

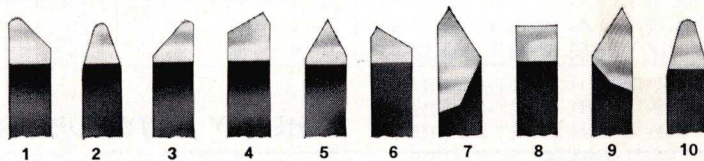
ARMSTRONG GROUND TOOL BITS

Ground to Form—High Speed Steel
For Use in ARMSTRONG Tool Holders

Armstrong Finished Form Cutters are made of a select grade of steel.

They are heat treated, hardened, ground to form and ready for use.

Specify by catalog number.



Size Square, Inches	Overall Length Inches	CATALOG NO.											Boxed Set Approx. Wt., Lb.
		Shape 1 Left- Hand Turning Tool	Shape 2 Round Nose Turning Tool	Shape 3 Right- Hand Turning Tool	Shape 4 Left- Hand Corner Tool	Shape 5 Thread- ing Tool	Shape 6 Right- Hand Corner Tool	Shape 7 Left- Hand Side Tool	Shape 8 Square Nose Tool	Shape 9 Right- Hand Side Tool	Shape 10 Brass Tool	*Boxed Set (1 of Each Shape)	
1/4	2 1/2	2202	2212	2222	2232	2242	2252	2262	2272	2282	2292	0415	.35
5/16	2 1/2	2203	2213	2223	2233	2243	2253	2263	2273	2283	2293	0405	.60
3/8	3	2204	2214	2224	2234	2244	2254	2264	2274	2284	2294	0406	1.00
7/16	3 1/2	2205	2215	2225	2235	2245	2255	2265	2275	2285	2295	0407	1.75
1/2	4	2206	2216	2226	2236	2246	2256	2266	2276	2286	2296	0408	2.15

*Set No. 0136S, consisting of 1 each of shapes 1, 2, 3, 5, 6, 10, 1/4 inch square bits in a box, also available.

ARMSTRONG SPECIAL HIGH SPEED STEEL

In 3-Foot Bars

Ready for Use, No Treatment Required

SQUARES
For Use in ARMSTRONG Turning and Boring Tools

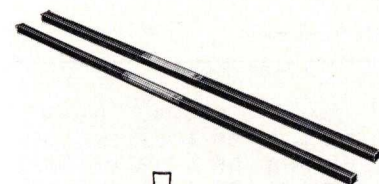
No.	Size Inches	Wt., Lb.
2481	1/4	.63
2482	5/16	1.00
2483	3/8	1.56
2484	7/16	2.01
2485	1/2	2.52
2490	5/8	4.06
2486	3/4	6.19
2487	7/8	8.00
2488	1	10.44
2489	1 1/8	13.94

BEVELS
For Use in ARMSTRONG Cutting-Off Tools

No.	Size Inches	Wt. Lb.
2681	3/32x 1/2	.50
2682	3/32x 5/8	.50
2683	1/8x 3/4	.94
2684	1/8x 7/8	1.00
2685	3/16x1	1.44
2686	3/16x1 1/8	2.56
2687	1/4x1 1/4	2.88
2688	1/4x1 3/8	3.00

RECTANGULARS
For Use in ARMSTRONG Planer and Slotter Tools

No.	Size Inches	Wt., Lb.
2501	1/4x 3/8	1.00
2502	5/16x 7/16	1.44
2503	3/8x 1/2	2.50
2504	1/2x 3/4	4.00
2505	5/8x 7/8	5.75
2506	3/4x1	8.19
2507	7/8x1 1/8	10.75



Square



Bevel



Rectangular



ARMSTRONG ARMIDE CARBIDE TIPPED CUTTERS

For Use in ARMSTRONG Carbide Tool Holders

ARMIDE is a sintered-carbide cutting material which approaches the diamond in hardness; machines the hardest and toughest steels and sand-filled castings with ease, as well as hard rubber, plastics and even glass. Cutter bits tipped with this material will hold their cutting edge much longer than the finest tool steels and will machine from 10 to 100 times as many pieces between grindings. Cutters are designed for use in ARMSTRONG Carbide Tool Holders. Available in seven standard forms and in three grades:

Grade 78—for average steel cutting.

Grade 78B—for steel roughing and general purpose.

Grade 883—for cast iron and non-ferrous work.

Order ARMSTRONG ARMIDE Carbide Tipped Cutters by number.

SQUARE SHANK TURNING CUTTERS



Style AL, Left-Hand



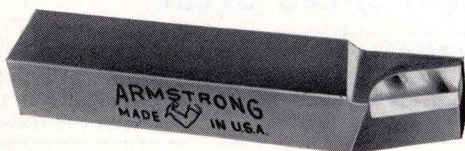
Style AR, Right-Hand

Style AL—Left-Hand				SHANK SIZE		TIP SIZE			Style AR—Right-Hand			
No.			Old No.	Square, Inches	Length, Inches	Thick., Inches	Width, Inches	Length, Inches	Old No.	No.		
Grade 78	Grade 78B	Grade 883								Grade 78	Grade 78B	Grade 883
AL 4-78	AL 4-78B	AL 4-883	M-71	$\frac{1}{4}$	$1\frac{1}{2}$	$\frac{3}{32}$	$\frac{3}{16}$	$\frac{5}{16}$	M-41	AR 4-78	AR 4-78B	AR 4-883
AL 5-78	AL 5-78B	AL 5-883	M-72	$\frac{5}{16}$	$2\frac{1}{4}$	$\frac{3}{32}$	$\frac{1}{4}$	$\frac{1}{2}$	M-42	AR 5-78	AR 5-78B	AR 5-883
AL 6-78	AL 6-78B	AL 6-883	M-73	$\frac{3}{8}$	$2\frac{1}{2}$	$\frac{3}{32}$	$\frac{1}{4}$	$\frac{1}{2}$	M-43	AR 6-78	AR 6-78B	AR 6-883
AL 7-78	AL 7-78B	AL 7-883	M-74	$\frac{7}{16}$	3	$\frac{3}{32}$	$\frac{1}{4}$	$\frac{1}{2}$	M-44	AR 7-78	AR 7-78B	AR 7-883
AL 8-78	AL 8-78B	AL 8-883	M-75	$\frac{1}{2}$	$3\frac{1}{2}$	$\frac{1}{8}$	$\frac{5}{16}$	$\frac{5}{8}$	M-45	AR 8-78	AR 8-78B	AR 8-883
AL10-78	AL10-78B	AL10-883	M-77	$\frac{5}{8}$	4	$\frac{5}{32}$	$\frac{3}{8}$	$\frac{3}{4}$	M-47	AR10-78	AR10-78B	AR10-883
AL12-78	AL12-78B	AL12-883	M-78	$\frac{3}{4}$	$4\frac{1}{2}$	$\frac{3}{16}$	$\frac{7}{16}$	$\frac{13}{16}$	M-48	AR12-78	AR12-78B	AR12-883

HEAVY DUTY TURNING CUTTERS

Left-Hand		SHANK SIZE			TIP SIZE			Right-Hand	
No.		Height, Inches	Width, Inches	Length, Inches	Thickness, Inches	Width, Inches	Length, Inches	No.	
Grade 78	Grade 883							Grade 78	Grade 883
HM71-78	HM71-883	$\frac{3}{8}$	$\frac{1}{4}$	$1\frac{1}{2}$	$\frac{3}{32}$	$\frac{3}{16}$	$\frac{5}{16}$	HM41-78	HM41-883
HM72-78	HM72-883	$\frac{7}{16}$	$\frac{5}{16}$	$2\frac{1}{4}$	$\frac{3}{32}$	$\frac{1}{4}$	$\frac{1}{2}$	HM42-78	HM42-883
HM73-78	HM73-883	$\frac{1}{2}$	$\frac{3}{8}$	$2\frac{1}{2}$	$\frac{3}{32}$	$\frac{1}{4}$	$\frac{1}{2}$	HM43-78	HM43-883
HM74-78	HM74-883	$\frac{9}{16}$	$\frac{7}{16}$	3	$\frac{3}{32}$	$\frac{1}{4}$	$\frac{1}{2}$	HM44-78	HM44-883
HM75-78	HM75-883	$\frac{3}{4}$	$\frac{1}{2}$	$3\frac{1}{2}$	$\frac{1}{8}$	$\frac{5}{16}$	$\frac{5}{8}$	HM45-78	HM45-883
HM77-78	HM77-883	$\frac{7}{8}$	$\frac{5}{8}$	4	$\frac{5}{32}$	$\frac{3}{8}$	$\frac{3}{4}$	HM47-78	HM47-883
HM78-78	HM78-883	1	$\frac{3}{4}$	$4\frac{1}{2}$	$\frac{3}{16}$	$\frac{7}{16}$	$\frac{13}{16}$	HM48-78	HM48-883

SQUARE SHANK TURNING CUTTERS



Style BL, Left-Hand



Style BR, Right-Hand

Style BL—Left-Hand				SHANK SIZE		TIP SIZE			Style BR—Right-Hand			
No.			Old No.	Square, Inches	Length, Inches	Thick., Inches	Width, Inches	Length, Inches	Old No.	No.		
Grade 78	Grade 78B	Grade 883								Grade 78	Grade 78B	Grade 883
BL 4-78	BL 4-78B	BL 4-883	M141	$\frac{1}{4}$	$1\frac{1}{2}$	$\frac{3}{32}$	$\frac{3}{16}$	$\frac{5}{16}$	M131	BR 4-78	BR 4-78B	BR 4-883
BL 5-78	BL 5-78B	BL 5-883	M142	$\frac{5}{16}$	$2\frac{1}{4}$	$\frac{3}{32}$	$\frac{1}{4}$	$\frac{1}{2}$	M132	BR 5-78	BR 5-78B	BR 5-883
BL 6-78	BL 6-78B	BL 6-883	M143	$\frac{3}{8}$	$2\frac{1}{2}$	$\frac{3}{32}$	$\frac{1}{4}$	$\frac{1}{2}$	M133	BR 6-78	BR 6-78B	BR 6-883
BL 7-78	BL 7-78B	BL 7-883	M144	$\frac{7}{16}$	3	$\frac{3}{32}$	$\frac{1}{4}$	$\frac{1}{2}$	M134	BR 7-78	BR 7-78B	BR 7-883
BL 8-78	BL 8-78B	BL 8-883	M145	$\frac{1}{2}$	$3\frac{1}{2}$	$\frac{1}{8}$	$\frac{5}{16}$	$\frac{5}{8}$	M135	BR 8-78	BR 8-78B	BR 8-883
BL10-78	BL10-78B	BL10-883	M147	$\frac{5}{8}$	4	$\frac{5}{32}$	$\frac{3}{8}$	$\frac{3}{4}$	M137	BR10-78	BR10-78B	BR10-883
BL12-78	BL12-78B	BL12-883	M148	$\frac{3}{4}$	$4\frac{1}{2}$	$\frac{3}{16}$	$\frac{7}{16}$	$\frac{13}{16}$	M138	BR12-78	BR12-78B	BR12-883

(Continued)



ARMSTRONG ARMIDE CARBIDE TIPPED CUTTERS

For Use in ARMSTRONG Carbide Tool Holders

SQUARE SHANK CUTTERS



Style C, Square Nose



Style D, 80°

Style C—Square Nose				SHANK SIZE		TIP SIZE				Style D—80°			
No.		Grade 883	Old No.	Square, Inches	Length, Inches	Thick., Inches	Width, Inches	Length, Inches	Radius, Inches	Old No.	No.		Grade 883
Grade 78	Grade 78B										Grade 78	Grade 78B	
C 4-78	C 4-78B	C 4-883	M-11	1/4	1 1/2	1/16	1/4	5/16	1/32	M-121	D 4-78	D 4-78B	D 4-883
C 5-78	C 5-78B	C 5-883	M-12	5/16	2 1/4	3/32	5/16	3/8	1/32	M-122	D 5-78	D 5-78B	D 5-883
C 6-78	C 6-78B	C 6-883	M-13	3/8	2 1/2	3/32	3/8	*1/2	1/16	M-123	D 6-78	D 6-78B	D 6-883
C 7-78	C 7-78B	C 7-883	M-14	7/16	3	3/32	7/16	1/2	1/16	M-124	D 7-78	D 7-78B	D 7-883
C 8-78	C 8-78B	C 8-883	M-15	1/2	3 1/2	1/8	1/2	†9/16	1/16	M-125	D 8-78	D 8-78B	D 8-883
C10-78	C10-78B	C10-883	M-17	5/8	4	5/32	5/8	5/8	3/32	M-127	D10-78	D10-78B	D10-883
C12-78	C12-78B	C12-883	M-18	3/4	4 1/2	3/16	3/4	3/4	3/32	M-128	D12-78	D12-78B	D12-883

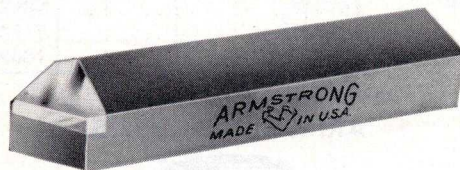
*C6-78, C6-78B and C6-883—3/8 inch.

†C8-78, C8-78B and C8-883—1/2 inch.

RECTANGULAR SHANK HEAVY DUTY CUTTERS

Square Nose		SHANK SIZE			TIP SIZE				80°	
No.		Height, Inches	Width, Inches	Length, Inches	Thick., Inches	Width, Inches	Length, Inches	Radius, Inches	No.	
Grade 78	Grade 883								Grade 78	Grade 883
HM11-78	HM11-883	3/8	1/4	1 1/2	1/16	1/4	5/16	1/32	HM121-78	HM121-883
HM12-78	HM12-883	1/16	5/16	2 1/4	3/32	5/16	3/8	1/32	HM122-78	HM122-883
HM13-78	HM13-883	1/2	3/8	2 1/2	3/32	3/8	1/2	1/16	HM123-78	HM123-883
HM14-78	HM14-883	9/16	7/16	3	3/32	7/16	1/2	1/16	HM124-78	HM124-883
HM15-78	HM15-883	3/4	1/2	3 1/2	1/8	1/2	9/16	1/16	HM125-78	HM125-883
HM17-78	HM17-883	7/8	5/8	4	5/32	5/8	5/8	3/32	HM127-78	HM127-883
HM18-78	HM18-883	1	3/4	4 1/2	3/16	3/4	3/4	3/32	HM128-78	HM128-883

SQUARE SHANK THREADING CUTTERS



Style E, 60°

Style E—60°		SHANK SIZE		TIP SIZE		
No.	Old No.	Square, Inches	Length, Inches	Thickness, Inches	Width, Inches	Length, Inches
Grade 78B						
E 4-78B	M-151	1/4	1 1/2	1/16	1/4	5/16
E 5-78B	M-152	5/16	2 1/4	3/32	5/16	3/8
E 6-78B	M-153	3/8	2 1/2	3/32	3/8	1/2
E 7-78B	M-154	7/16	3	3/32	7/16	1/2
E 8-78B	M-155	1/2	3 1/2	1/8	1/2	9/16
E10-78B	M-157	5/8	4	5/32	5/8	5/8
E12-78B	M-158	3/4	4 1/2	3/16	3/4	3/4

ARMIDE should be held parallel to the tool holder shank. Use ARMSTRONG Carbide Tool Holders ONLY—Specially designed for these cutters.

For Carbide Tool Holders especially designed for use with ARMIDE Cutters, see page 3

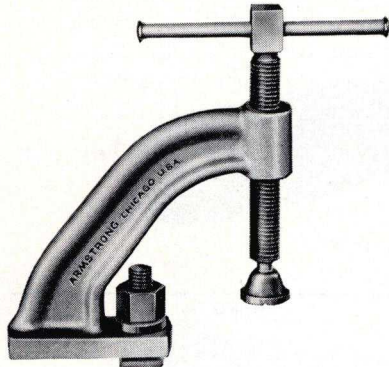


ARMSTRONG "T" SLOT CLAMPS

Drop Forged Steel

Used for holding down work on planers, drill presses, milling machines and other machines having slotted tables. One or more clamps may be mounted in "T" slot or slots

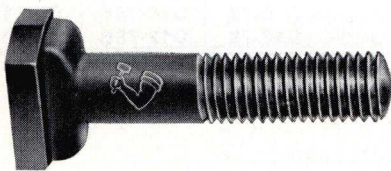
by running T-slot bolt with which each clamp is equipped into slot. Clamp is fixed in desired position by tightening nut and work is held by tightening down screw.



The clamp bodies are drop forged from a selected grade of steel, are heat treated to insure the maximum degree of strength and finished in gray baked-on enamel. The heavy duty heat-treated screw is equipped with sliding pin handle and the point is fitted with a V-slotted swivel cap to facilitate holding small rounds in addition to flat surfaces. Each clamp is furnished with one ARMSTRONG T-slot bolt, nut and washer. Separately boxed.

No.	Capacity Inches	Equipped with Armstrong T-Slot Bolt, Nut and Washer Inches	Front of Foot to Center of Screw Inches	Approx. Weight Lb.
713	0—3 $\frac{1}{4}$	$\frac{5}{8}$ x2	2 $\frac{1}{4}$	4.63
713-B	0—3 $\frac{1}{4}$	$\frac{3}{4}$ x2 $\frac{1}{2}$	2 $\frac{1}{4}$	5.00

ARMSTRONG "T" SLOT BOLTS



ARMSTRONG "T" Slot Bolts are used for setting up work on planers, shapers, milling machines and other similar applications. Forged from selected steel. Will fit "T" slots without machining. Threaded American National Coarse, U.S. Std., ready for use.

Cannot turn in machine table and will not break out machine table slots.

Packaged 25 to a box in lengths up to and including 6 inches, longer lengths not boxed.

Length Under Head Inches	3/8" T-Slot Size		1/2" T-Slot Size		5/8" T-Slot Size		3/4" T-Slot Size		7/8" T-Slot Size		1" T-Slot Size	
	No.	Wt. Lb.	No.	Wt. Lb.	No.	Wt. Lb.	No.	Wt. Lb.	No.	Wt. Lb.	No.	Wt. Lb.
1	7984	.05										
1 1/2	7990	.06	8281	.16	8301	.27						
2	7991	.08	8282	.18	8302	.29	8322	.49				
2 1/2	7992	.09	8283	.21	8303	.33	8323	.55	7700	.79		
3	7993	.11	8284	.24	8304	.37	8324	.60	7701	.86	7719	1.16
3 1/2	7994	.12	8285	.26	8305	.42	8325	.67	7702	.92		
4	7995	.14	8286	.29	8306	.47	8326	.73	7703	.98	7720	1.33
4 1/2	7996	.15	8287	.31	8307	.52	8327	.79	7704	1.04		
5	7997	.16	8288	.35	8308	.56	8328	.84	7705	1.10	7721	1.49
5 1/2	7998	.18	8289	.38	8309	.60	8329	.91	7706	1.17		
6	7999	.19	8290	.40	8310	.64	8330	.96	7707	1.23	7722	1.66
7	7985	.22	8038	.44	7890	.71	7894	1.10	7708	1.35	7723	1.83
8	8000	.26	8291	.49	8311	.75	8331	1.20	7709	1.47	7724	2.00
10			8292	.61	8312	.96	8332	1.40	7711	1.72	7726	2.34
12			8293	.71	8313	1.10	8333	1.70	7712	1.97	7727	2.68
14					7892	1.30	7896	1.70	7713	2.22	7728	3.01
16					7893	1.50	7897	2.20	7714	2.47	7729	3.35
18					7888	1.70	7898	2.40	7715	2.71	7730	3.69
20					7889	1.80	7899	2.60	7716	2.96	7731	4.03

ARMSTRONG "T" SLOT NUTS

Forged Steel



For use with studs in "T" slots of planers, shapers, boring mills, milling machines, heavy types of punch presses and machine based castings having "T" slots. Like our "T" Slot Bolts, they will fit "T" slots without machining. Furnished tapped with American National Coarse (U.S. Std.) Threads. Packed 25 in box.

No.	T-Slot Size Inches	U.S. Std. Threads	Approx. Wt. Lb.
5-TN	$\frac{5}{8}$	$\frac{1}{2}$ —13	.20
6-TN	$\frac{3}{4}$	$\frac{5}{8}$ —11	.30
7-TN	$\frac{7}{8}$	$\frac{3}{4}$ —10	.45
8-TN	1	$\frac{7}{8}$ —9	.70

ARMSTRONG NUTS



ARMSTRONG Nuts for T-slot bolts are made from a special steel and are heat treated. Furnished only with American National Coarse (U.S. Std.) Threads.

Standard package, 100 to the box.

No.	Bolt Diam. Inches	Across Flats Inches	Thickness Inches	Approx. Wt. Lb.
N-19	$\frac{3}{8}$	$\frac{11}{16}$	$\frac{1}{2}$	.06
N-20	$\frac{1}{2}$	$\frac{7}{8}$	$\frac{5}{8}$	.08
N-21	$\frac{5}{8}$	$\frac{11}{16}$	$\frac{3}{4}$	.17
N-22	$\frac{3}{4}$	$\frac{11}{4}$	$\frac{7}{8}$	.25
N-23	$\frac{7}{8}$	$\frac{17}{16}$	1	.34

ARMSTRONG WASHERS



ARMSTRONG Washers for T-slot bolts are heavy, extra thick washers, made from high carbon cold rolled steel. Heat treated. Furnished in standard packages of 100 to a box.

No.	Bolt Diam. Inches	Inside Diam. Inches	Outside Diam. Inches	Thickness Inches	Approx. Wt. Lb.
W-9	$\frac{3}{8}$	$\frac{7}{16}$	$\frac{7}{8}$	$\frac{3}{16}$	.03
W-10	$\frac{1}{2}$	$\frac{9}{16}$	1	$\frac{3}{16}$	.03
W-11	$\frac{5}{8}$	$\frac{23}{32}$	$1\frac{1}{4}$	$\frac{1}{4}$	.06
W-12	$\frac{3}{4}$	$\frac{27}{32}$	$1\frac{1}{2}$	$\frac{1}{4}$	.13
W-13	$\frac{7}{8}$	$\frac{31}{32}$	$1\frac{3}{4}$	$\frac{1}{4}$	.20



ARMSTRONG MACHINE STRAP CLAMPS

Drop Forged Steel

For holding down work, dies and fixtures on planers, punch presses, milling machines, boring mills and drill presses. Drop forged from carefully selected steel, uniformly heat treated to increase strength and stiffness.

It is a profitable practice to provide a full assortment of ARMSTRONG Machine Strap Clamps for holding down work safely and securely.

ARMSTRONG PLAIN CLAMP



No.	Length Inches	Width Inches	Thick- ness Inches	SIZE OF SLOT		Approx. Weight Lb.
				Width Inches	Length Inches	
54	4	1 $\frac{5}{8}$	$\frac{3}{4}$	1 $\frac{1}{16}$	1 $\frac{3}{8}$	1.00
56	6	1 $\frac{3}{4}$	$\frac{7}{8}$	1 $\frac{1}{16}$	2 $\frac{1}{16}$	1.75
58	8	2 $\frac{1}{8}$	1 $\frac{1}{8}$	1 $\frac{3}{16}$	2 $\frac{13}{16}$	3.75
59	10	2 $\frac{1}{2}$	1 $\frac{3}{8}$	1 $\frac{5}{16}$	3 $\frac{11}{16}$	7.00

ARMSTRONG FINGER CLAMP



No.	Lgth. In.	Width Inches	Thick- ness Inches	SIZE OF SLOT		SIZE FINGER		Approx. Weight Lb.
				Width Inches	Length Inches	Diam. Inches	Length Inches	
44	4	1 $\frac{3}{8}$	$\frac{3}{4}$	1 $\frac{1}{16}$	1 $\frac{3}{8}$	$\frac{1}{2}$	$\frac{1}{2}$	.75
46	6	1 $\frac{3}{4}$	$\frac{7}{8}$	1 $\frac{1}{16}$	1 $\frac{15}{16}$	$\frac{5}{8}$	$\frac{5}{8}$	1.50
48	8	2 $\frac{1}{8}$	1 $\frac{1}{8}$	1 $\frac{3}{16}$	2 $\frac{9}{16}$	$\frac{3}{4}$	$\frac{3}{4}$	3.00

ARMSTRONG SCREW HEEL CLAMP



No.	Length Inches	Width Inches	Thick- ness Inches	SIZE OF SLOT		Approx. Weight Lb.
				Width Inches	Length Inches	
54-A	4	1 $\frac{5}{8}$	$\frac{3}{4}$	1 $\frac{1}{16}$	1 $\frac{3}{8}$	1.13
56-A	6	1 $\frac{3}{4}$	$\frac{7}{8}$	1 $\frac{1}{16}$	2 $\frac{1}{16}$	2.00
58-A	8	2 $\frac{1}{8}$	1 $\frac{1}{8}$	1 $\frac{3}{16}$	2 $\frac{13}{16}$	4.00
59-A	10	2 $\frac{1}{2}$	1 $\frac{3}{8}$	1 $\frac{5}{16}$	3 $\frac{11}{16}$	7.25

ARMSTRONG "U" CLAMP



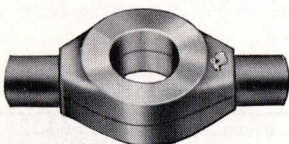
No.	Lgth. In.	Width In.	Thick- ness In.	SIZE OF SLOT		SIZE FINGER		Approx. Weight Lb.
				Width Inches	Length Inches	Diam. Inches	Length Inches	
64	4	1 $\frac{3}{4}$	$\frac{3}{4}$	1 $\frac{1}{16}$	3 $\frac{1}{2}$	$\frac{9}{16}$	$\frac{9}{16}$	1.0
66	6	2	$\frac{7}{8}$	1 $\frac{1}{16}$	5 $\frac{1}{2}$	1 $\frac{1}{16}$	1 $\frac{1}{16}$	2.0
68	8	2 $\frac{3}{8}$	1 $\frac{1}{8}$	1 $\frac{3}{16}$	7 $\frac{3}{8}$	1 $\frac{3}{16}$	1 $\frac{3}{16}$	4.0
110	10	2 $\frac{3}{4}$	1 $\frac{1}{4}$	1 $\frac{5}{16}$	9	1 $\frac{5}{16}$	1 $\frac{5}{16}$	6.5
112	12	3 $\frac{1}{4}$	1 $\frac{3}{8}$	1 $\frac{1}{16}$	11	1 $\frac{1}{16}$	1 $\frac{1}{16}$	11.0

ARMSTRONG GOOSE NECK CLAMP



No.	Lgth. In.	Width Inches	Thick- ness Inches	SIZE OF SLOT		Offset Inches	Approx. Weight Lb.
				Width Inches	Length Inches		
74	4	1 $\frac{3}{8}$	$\frac{3}{4}$	1 $\frac{1}{16}$	1 $\frac{5}{16}$	1 $\frac{3}{16}$	1.00
76	6	1 $\frac{3}{4}$	$\frac{7}{8}$	1 $\frac{1}{16}$	1 $\frac{11}{16}$	1 $\frac{5}{16}$	2.00
78	8	2 $\frac{1}{8}$	1 $\frac{1}{8}$	1 $\frac{3}{16}$	2 $\frac{7}{16}$	1 $\frac{1}{8}$	4.25

ARMSTRONG DOUBLE FINGER CLAMP



No.	Lgth. In.	Width Inches	Thick- ness Inches	Diam. Hole Inches	SIZE FINGERS		Approx. Weight Lb.
					Diam. Inches	Length Inches	
30	3	1 $\frac{1}{2}$	$\frac{5}{8}$	1 $\frac{1}{16}$	$\frac{1}{2}$	$\frac{1}{2}$	.38
35	3 $\frac{1}{2}$	1 $\frac{5}{8}$	$\frac{3}{4}$	1 $\frac{1}{16}$	$\frac{5}{8}$	$\frac{5}{8}$	.63
40	4	1 $\frac{13}{16}$	$\frac{7}{8}$	1 $\frac{3}{16}$	$\frac{3}{4}$	$\frac{3}{4}$	.88

ARMSTRONG UNIVERSAL ADJUSTABLE CLAMP

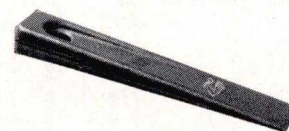


Designed for holding work on planers, boring mills, drill presses, milling machines and machine based castings with "T" slots, without blocks and shims. Saddle position can be changed to keep the tie bolt vertical.

No.	Length Inches	Width Clamp Inches	Adjust- ment Inches	Max. T-Slot Bolt Size Inches	Extra Saddles No.	APPROX. WT., LB.	
						Extra Saddle	Com- plete
21	5 $\frac{1}{16}$	1 $\frac{5}{8}$	2 $\frac{1}{4}$	$\frac{5}{8}$	21S	.19	1.3
22	8	2 $\frac{1}{8}$	4	$\frac{3}{4}$	22S	.31	3.1
23	12	2 $\frac{3}{4}$	6 $\frac{1}{4}$	1	23S	.75	9.8

ARMSTRONG SET-UP WEDGES

Used for setting-up work on planers, shapers, milling machines and other similar applications.



No.	Lgth. In.	Wdth. In.	Thick End In.	Approx. Weight Lb.
3WG	3	1	$\frac{1}{4}$	.12
5WG	5	1	$\frac{1}{2}$	.31
6WG	6	1 $\frac{1}{4}$	$\frac{3}{4}$	.62



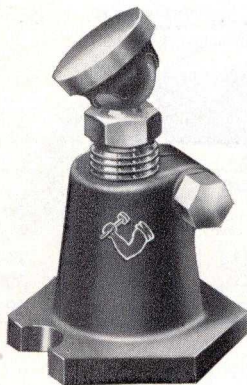
ARMSTRONG JACKS AND STEP BLOCKS

PLANER JACKS

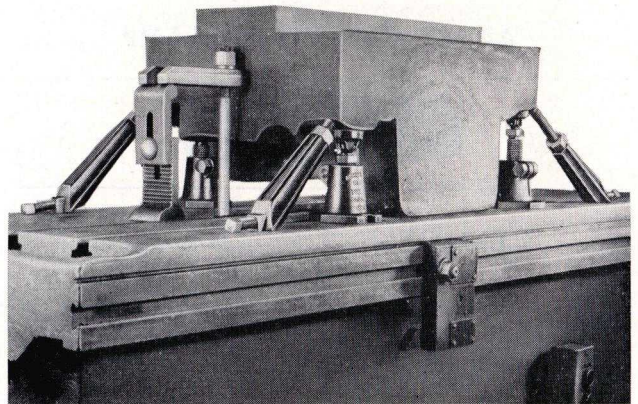
For Leveling Work on Machine Tools

ARMSTRONG Planer Jacks are designed to replace the haphazard devices and methods quite generally in use for leveling work on machine tools and a glance will show any mechanic their convenience and utility. A set of them on a machine will greatly reduce the time required for preliminary arrangements as compared with the actual time on the job, and will moreover, by their perfect adjustability and solidity, insure good, true surfaced work.

Separately boxed.



No.	HEIGHT		Safe Static Load in Tons	Approx. Wt. Lb.
	Contracted Inches	Extended Inches		
1	2 $\frac{7}{8}$	3 $\frac{3}{4}$	3	1.5
2	4	5 $\frac{1}{4}$	5	3.0
3	5 $\frac{3}{8}$	7 $\frac{1}{2}$	8	6.0
4	7 $\frac{1}{2}$	12	12	12.0



Showing Use of Setting-up Tools

ADJUSTABLE STEP BLOCKS

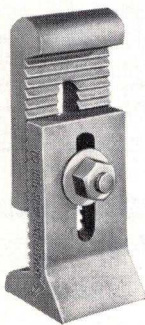
Convenient—Sturdy

ARMSTRONG Adjustable Step Blocks are used for giving various heights for set-up work in tool rooms and machine shops.

Designed to replace makeshift devices frequently used and to provide easily adjustable rigid blocking.

Made of certified malleable iron, these blocks are finished in gray baked-on enamel.

Each block is boxed separately.



No.	HEIGHT		Width of Block Inches	Adjustment Inches	Approx. Weight Lb.
	Contracted Inches	Extended Inches			
251	5 $\frac{1}{2}$	7 $\frac{3}{4}$	2 $\frac{1}{16}$	$\frac{1}{4}$	5.75

VERTICAL AND BRACING JACKS

Non-Skid—Cut Clamping Costs

These jacks combine ease of operation and great power with an absolutely straight thrust as neither base nor screw revolve; the nut is the only part which turns. This design prevents "creeping" and permits setting the jack under the fillet or sloping surface without danger of slipping.

Each jack is separately boxed.

Vertical Jacks

No.	HEIGHT		Diam. Screw Inches	Safe Static Load in Tons	Approx. Wt. Lb.
	Contracted Inches	Extended Inches			
351	2 $\frac{3}{4}$	4	$\frac{5}{8}$	2	1.50
352	4	7 $\frac{1}{4}$	$\frac{5}{8}$	2	2.00
353	6 $\frac{3}{4}$	12	$\frac{3}{4}$	3	5.25
354	8 $\frac{3}{4}$	15	1	5	7.00



Vertical Jack

Bracing Jacks

No.	HEIGHT		Diam. Screw Inches	Safe Static Load in Tons	Approx. Wt. Lb.
	Contracted Inches	Extended Inches			
361	3 $\frac{3}{4}$	6	$\frac{5}{8}$	2	1.00
362	4 $\frac{3}{4}$	8	$\frac{5}{8}$	2	1.50
363	6 $\frac{3}{4}$	12	$\frac{3}{4}$	3	2.75
364	8 $\frac{3}{4}$	16	$\frac{3}{4}$	3	4.00

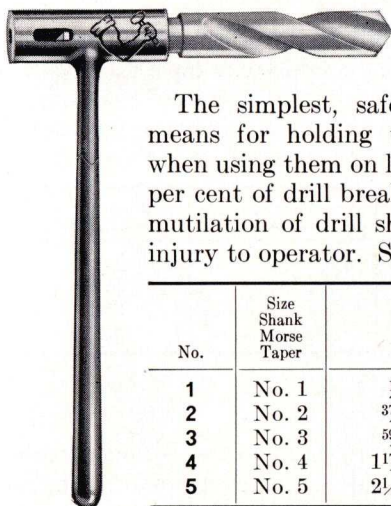


Bracing Jack



ARMSTRONG DRILL HOLDERS

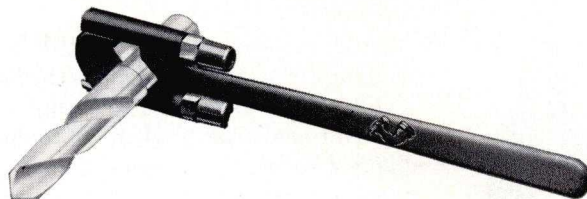
SAFETY DRILL HOLDER



The simplest, safest, most efficient means for holding taper shank drills when using them on lathe; eliminates 90 per cent of drill breakage in such work, mutilation of drill shanks and sockets, injury to operator. Separately boxed.

No.	Size Shank Morse Taper	Holds Drills, Inches	Approx. Wt. Lb.
1	No. 1	$\frac{1}{16}$ to $\frac{9}{16}$	1.5
2	No. 2	$\frac{37}{64}$ to $\frac{29}{32}$	2.0
3	No. 3	$\frac{59}{64}$ to $1\frac{1}{4}$	4.0
4	No. 4	$1\frac{17}{64}$ to 2	7.0
5	No. 5	$2\frac{1}{64}$ to 3	14.5

"U" CLAMP DRILL HOLDER



This tool is designed for use in holding straight shank drills, reamers or similar tools, with safety to the operator and without danger of injury to the tool held. Each drill holder is boxed separately.

No.	Capacity Inches	Length Inches	Approx. Wt., Lb.
200	$\frac{3}{8}$ to 1	11	2.25
300	$\frac{5}{8}$ to $1\frac{1}{2}$	13	4.00
400	$\frac{7}{8}$ to 2	$15\frac{1}{2}$	7.00
500	$1\frac{1}{4}$ to 3	18	13.75

ARMSTRONG GRINDING HOLDERS

ARMSTRONG Grinding Holders are convenient and inexpensive. Tool holders are frequently ruined by workmen holding cutters in them while grinding or sharpening and this wasteful practice can be corrected by the use of these grinding holders.



No.	Holds Cutters	Approx. Wt., Lb.
1-G	$\frac{3}{16}$ and $\frac{1}{4}$ " Square	1.00
2-G	$\frac{5}{16}$ and $\frac{3}{8}$ " Square	1.50
3-G	$\frac{7}{16}$ and $\frac{1}{2}$ " Square	2.25
4-G	$\frac{5}{8}$ and $\frac{3}{4}$ " Square	3.50

ARMSTRONG DRILL DRIFTS

PLAIN DRILL DRIFTS



ARMSTRONG Plain Drill Drifts are drop forged from selected steel, finished and hardened.

Standard package 10.

No.	Length Inches	Fitting Sockets and Sleeves	Approx. Wt., Lb.
1	5	No. 1	.13
2	6	No. 2	.25
3	7	No. 3	.50
4	$8\frac{1}{2}$	No. 4, 5, 6	1.00

SAFETY DRILL DRIFTS

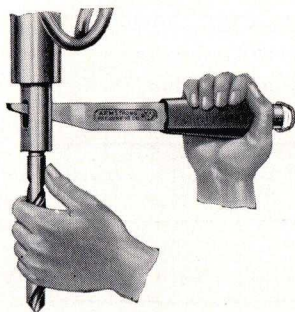
Automatic—Convenient—Effective

The ARMSTRONG Safety Drift combines hammer and drift, thus leaving one hand to support the tool to be removed. See illustration below.



The heavy handle or driver is slidably mounted upon the blade, which is automatically kept extended, when not in operation, by a low tension coil spring.

In operating, the point of the blade is inserted in the slot of the drill socket and handle driven forcibly up blade, until it strikes butt end of drift—it will strike a blow sufficiently heavy to remove the most stubborn drill.



No.	Capacity Morse Taper	Recommended for	Approx. Wt., Lb.	Extra Blades Only	
				No.	Approx. Wt., Lb.
1-A	No. 1, 2 or 3	No. 1 or 2	1.50	8451	.25
2-A	No. 2, 3 or 4	No. 2 or 3	2.50	8452	.50
3-A	No. 3, 4 or 5	No. 3 or 4	3.75	8453	.90
4-A	No. 4, 5 or 6	No. 4 or 5	6.00	8454	1.10



ARMSTRONG MILLING MACHINE AND CLAMP LATHE DOGS

MILLING MACHINE DOGS

Drop Forged Steel



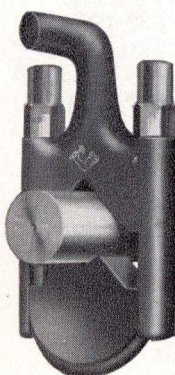
These dogs are recommended for use on taper work carried between centers on milling machines. The flat tail engages the head slot without the backlash produced by taper tail dogs.

Hubs are large enough to permit re-tapping. Screws are made from selected steel with American National Coarse (U.S. Standard) thread and are hardened on the point, the improved shape of which also renders them less liable to flange or upset.

No.	Capacity Inches	Approx. Wt., Lb.	No.	Capacity Inches	Approx. Wt., Lb.
42	$\frac{1}{2}$	.75	46	$1\frac{1}{2}$	1.50
43	$\frac{3}{4}$	.88	47	$1\frac{3}{4}$	1.63
44	1	1.00	48	2	2.00
45	$1\frac{1}{4}$	1.25	..	...	....

SAFETY CLAMP LATHE DOGS

Practical—Safe—Well Balanced

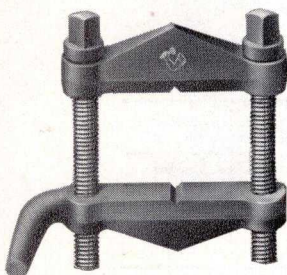


ARMSTRONG Safety Clamp Lathe Dogs are constructed to combine a wide range of adjustment with the convenient features of the clamp dog and the simplicity and strength of the ordinary lathe dog. They will accommodate themselves readily to work of any shape and will hold it securely and squarely, being especially adapted for use on finished work which would be liable to be damaged by the set screw of a common lathe dog. The sliding jaw is operated by a loose fitting U bolt, the ends of which are protected by safety sleeve nuts and can be adjusted to size very quickly, only a wrench being necessary to tighten. One advantage of this dog is that it can be applied without removing work from centers.

No.	Capacity Inches	Approx. Wt., Lb.	No.	Capacity Inches	Approx. Wt., Lb.
1-U	$\frac{1}{8}$ to $\frac{5}{8}$	.63	5-U	$1\frac{1}{4}$ to 3	9.5
2-U	$\frac{3}{8}$ to 1	1.75	6-U	$1\frac{3}{4}$ to 4	16.0
3-U	$\frac{5}{8}$ to $1\frac{1}{2}$	3.00	7-U	$2\frac{1}{2}$ to 5	21.0
4-U	$\frac{7}{8}$ to 2	4.50	....	.....	....

CLAMP LATHE DOGS

Drop Forged Steel



The under face of screw heads is convex, fitting into a concave seat, and as the holes in upper bar are larger than the screw, this allows for considerable tilting without bending the screws. The clamp bars are forged from a stiff, open hearth steel, carefully machined and hardened. Screws are hardened. Separately boxed.

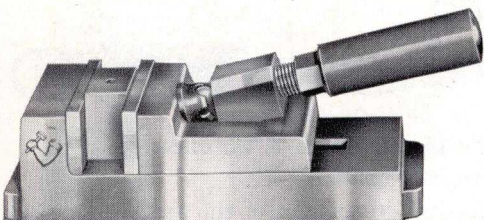
No.	Cap. Between Screws Inches	Approx. Wt., Lb.	No.	Cap. Between Screws Inches	Approx. Wt., Lb.
11	$1\frac{3}{4}$	.63	13	$2\frac{3}{4}$	1.75
12	$2\frac{1}{4}$	1.00	14	$3\frac{1}{2}$	2.75

ARMSTRONG QUICK-ACTION DRILL VISE

A handy vise for tool makers and general machine shop use.

Points of Advantage:

One turn of handle sets or releases the vise.
Can be instantly adjusted to any size within its capacity.
Sides are machined true and at right angles with bottom.
Will hold work true and solid, as sliding jaw draws down.



The handle provides a safe and convenient means of holding light work with ample leverage against the tendency to twist under strain of cut, and bottom of vise has projecting lugs at either end to facilitate clamping it to the machine when desirable.

No.	CAPACITY			DIMENSIONS OF LUGS		Length Overall Inches	Approx. Weight Lb.
	Width of Jaw Inches	Depth of Jaw Inches	Opens Inches	Height Inches	Width Inches		
1-V	2	$\frac{15}{16}$	$1\frac{3}{4}$	$\frac{5}{16}$	$\frac{1}{4}$	6	4.5
2-V	$2\frac{3}{4}$	$\frac{13}{16}$	$2\frac{1}{2}$	$\frac{7}{16}$	$\frac{3}{8}$	$7\frac{3}{4}$	8.5
3-V	$3\frac{1}{2}$	$1\frac{7}{16}$	3	$\frac{9}{16}$	$\frac{7}{16}$	$9\frac{3}{8}$	16.0



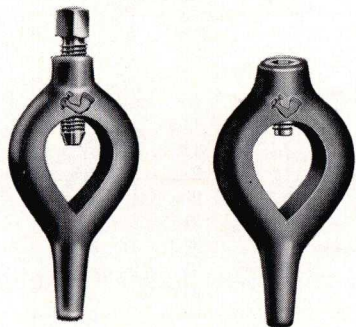
ARMSTRONG LATHE DOGS

Drop Forged Steel—With Either Square Head or Safety Screws

ARMSTRONG Lathe Dogs are drop forged from selected steel to give exceptional toughness and stiffness which are essential in a good lathe dog. The hubs are large enough to permit retapping. The screws are made from high carbon steel, hardened, with American National Coarse (U.S. Std.) thread. Finished in gray baked-on enamel.

Dogs with square head screws will be shipped unless otherwise specified.

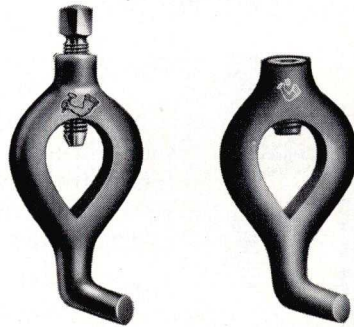
Straight Tail Lathe Dogs



With Square Head Screw With Safety Screw

No.		Capacity Inches	APPROX. WT., LB. EXTRA SCREWS		Approx. Weight Lb. Complete
With Sq. Head Screw	*With Safety Screw		Square Head	Safety	
21	21-H	3/8	.03	.01	.25
22	22-H	1/2	.04	.02	.25
23	23-H	3/4	.07	.03	.50
24	24-H	1	.13	.06	.75
25	25-H	1 1/4	.18	.07	1.25
26	26-H	1 1/2	.18	.09	2.00
27	27-H	1 3/4	.25	.12	2.50
28	28-H	2	.34	.16	3.25
29	29-H	2 1/2	.43	.21	4.75
30	30-H	3	.43	.21	6.75
31	31-H	3 1/2	.71	.31	8.00
32	32-H	4	.71	.31	11.00
33	33-H	5	1.00	.46	17.00
..

Bent Tail Lathe Dogs

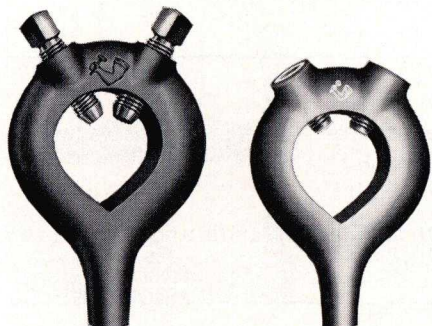


With Square Head Screw With Safety Screw

No.		Capacity Inches	APPROX. WT., LB. EXTRA SCREWS		Approx. Weight Lb. Complete
With Sq. Head Screw	*With Safety Screw		Square Head	Safety	
1	1-H	3/8	.03	.01	.25
2	2-H	1/2	.04	.02	.38
3	3-H	3/4	.07	.03	.50
4	4-H	1	.13	.06	.75
5	5-H	1 1/4	.18	.07	1.50
6	6-H	1 1/2	.18	.09	2.00
7	7-H	1 3/4	.25	.12	2.75
8	8-H	2	.34	.16	3.50
9	9-H	2 1/2	.43	.21	5.25
10	10-H	3	.43	.21	6.75
11	11-H	3 1/2	.71	.31	9.00
12	12-H	4	.71	.31	12.00
13	13-H	5	1.00	.46	18.00
14	14-H	6	1.00	.46	24.00

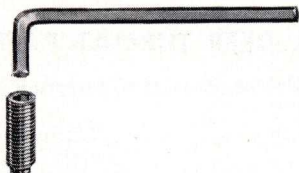
HEAVY DUTY LATHE DOGS

Straight Tail Lathe Dogs



With Square Head Screws With Safety Screws

Double Screw



Safety Screw
and Wrench

Bent Tail Lathe Dogs



With Square Head Screws With Safety Screws

No.		Capacity Inches	APPROX. WT., LB. EXTRA SCREWS		Approx. Weight Lb. Complete
With Sq. Head Screw	*With Safety Screw		Square Head	Safety	
132	132-H	4	.71	.31	15.0
133	133-H	5	1.00	.46	21.0
134	134-H	6	1.00	.46	29.0

No.		Capacity Inches	APPROX. WT., LB. EXTRA SCREWS		Approx. Weight Lb. Complete
With Sq. Head Screws	*With Safety Screws		Square Head	Safety	
112	112-H	4	.71	.31	15.0
113	113-H	5	1.00	.46	21.0
114	114-H	6	1.00	.46	29.0
117	117-H	7	1.40	.65	39.0
118	118-H	8	2.00	1.00	50.0

*Wrenches furnished as extras. When ordering dogs with safety screws, specify wrenches wanted.



ARMSTRONG "C" CLAMPS

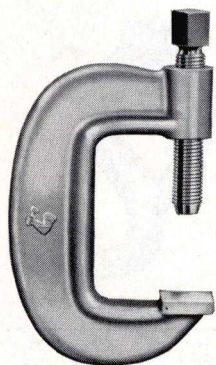
Drop Forged Steel

HEAVY DUTY PATTERN

For Maximum Holding Power

Heavy Design with Long Hub, Extra Large Screws

In design, quality of material and accuracy of machining, ARMSTRONG "C" Clamps meet the demand for a strong, strictly high grade, reliable clamp.



ARMSTRONG "C" Clamps for maximum service—drop forged from a select grade of steel, heat treated to insure maximum degree of strength.

The hubs are extra long.

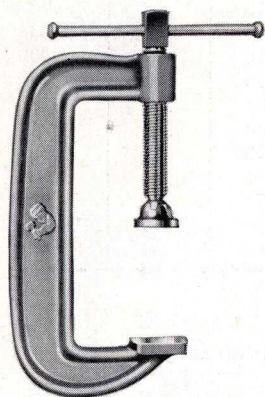
Extra large screws are heat treated and have hardened points.

No.	CAPACITY		Depth Center of Screw to Back Inches	Diam. of Screw Inches	Approx. Weight Lb.
	Max. Inches	Min. Inches			
0	3/4	0	3/4	3/8	.50
1	1 1/4	0	1 1/8	7/16	.75
1 1/2	1 3/4	0	1 1/2	9/16	1.75
2	2 1/4	7/8	1 7/8	1 1/16	3.50
3	3 1/4	1 1/4	2 1/4	1 3/16	6.00
4	4 1/2	1 3/4	2 3/4	1 5/16	10.00
5	5 1/2	2 1/2	3 1/4	1	13.50
6	6 1/2	3 1/4	3 1/2	1 1/8	18.50
8	8 1/2	4 1/2	3 3/4	1 1/4	25.00
10	10 1/2	6	3 7/8	1 1/2	30.00
12	12 1/2	7 1/2	4	1 3/4	33.00

Note—Heavy "C" Clamps Nos. 2 to 12 can be furnished with full length screws when specified. With full length screws the minimum capacity of all clamps is 0.

MEDIUM SERVICE PATTERN

For Maximum Utility



Well adapted to that wide field of work not requiring the extra weight and extreme stiffness which make our heavy clamp unequalled for the very hardest service.

The design and careful selection of material used combine the maximum strength and stiffness consistent with convenient weight.

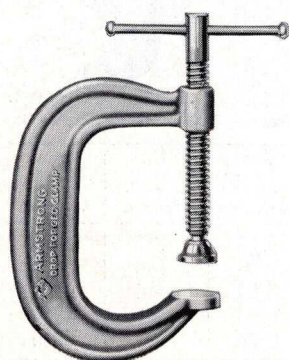
Screw is heat treated. Equipped with sliding pin handle and swivel cap on the screw point.

No.	CAPACITY		Depth Center of Screw to Back Inches	Diam. of Screw Inches	Approx. Weight Lb.
	Max. Inches	Min. Inches			
102	2	0	1 1/2	1/2	1.25
103	3	0	2	5/8	2.50
104	4	0	2 3/8	3/4	4.00
106	6	2	2 1/2	3/4	6.00
108	8	4	2 5/8	3/4	7.25
110	10	6	2 3/4	3/4	8.25
112	12	8	2 7/8	7/8	11.50
115	15	10	3 1/16	7/8	14.00
118	18	13	3 1/4	7/8	18.00

It is drop forged of select steel, and is heat treated to increased tensile strength.

EXTRA DEEP THROAT PATTERN

For Maximum Clearance



This clamp is designed with extra deep throat for maximum clearance required by body builders, wood-workers and allied trades.

Body is drop forged from a selected steel; heat treated for maximum strength and stiffness.

The screw is machined from selected steel.

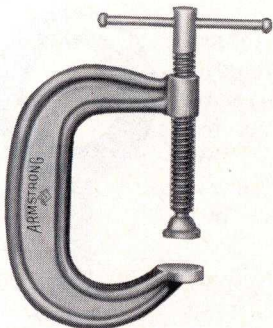
Equipped with sliding pin handle and a swivel cap on the screw point.

No.	CAPACITY		Depth Center of Screw to Back Inches	Diam. of Screw Inches	Approx. Weight Lb.
	Max. Inches	Min. Inches			
401 1/2	1 1/2	0	1 3/8	3/8	1.00
402	2	0	2	1/2	1.13
403	3	0	2 3/8	1/2	1.50
404	4	0	2 3/4	5/8	2.25
406	6	0	3 3/8	3/4	3.75
408	8	2	4 1/2	3/4	5.50
410	10	3	5 3/8	3/4	8.25
412	12	4	5 3/4	7/8	12.50



ARMSTRONG CLAMPS
"C" CLAMPS—SPATTER RESISTING
Extra Deep Throat Pattern For Welding

Drop Forged Steel



Spatter resisting for welding. Body, swivel and screw are cadmium-plated all over to prevent welding spatter from sticking to them.

Especially designed with extra deep throat for maximum clearance required by body builders, wood workers, welding, etc.

Body is drop forged from selected steel, heat treated for maximum strength and stiffness.

Screw is machined from selected steel and equipped with a sliding pin handle and a swivel cap on the screw point.

No.	CAPACITY		Depth Center of Screw to Back Inches	Diam. of Screw Inches	Approx. Weight Lb.
	Max. Inches	Min. Inches			
401½-S	1½	0	1⅜	⅜	1.00
402-S	2	0	2	½	1.13
403-S	3	0	2⅜	½	1.50
404-S	4	0	2¾	⅝	2.25
406-S	6	0	3⅝	¾	3.75
408-S	8	2	4½	¾	5.50
410-S	10	3	5⅜	¾	8.25
412-S	12	4	5¾	⅞	12.50

"C" CLAMPS FOR TOOL MAKERS

Drop Forged Steel

These clamps are drop forged from a selected steel and heat treated to increase the natural strength and toughness of the material.

The screws also are drop forged from a selected steel, are heat treated and are constructed with square necks to enable the user to set them up tightly by using a wrench.

Furnished either with plain or swivel screw. Clamps with swivel screw will be furnished, unless plain screw type is specified.



With Plain Screw

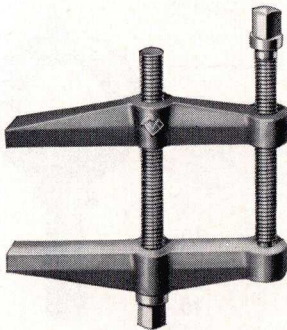


With Swivel Screw

No.	CAPACITY		Depth Center of Screw to Back Inches	Diameter of Screw Inches	Approx. Weight Lb.
	Max. Inches	Min. Inches			
201	1	0	1⅙	⅙	.33
202	2	0	1⅓	⅝	.25
203	3	1	1⅝	⅝	.63
204	4	1¼	1⅞	⅞	1.00

MACHINISTS' CLAMPS

Drop Forged Steel

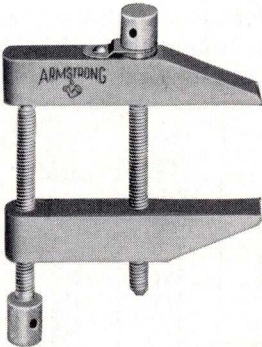


ARMSTRONG Machinists' Clamps are drop forged from a selected grade steel, carefully machined and hardened. The under face of the center screw is convex, fitting into a concave seat to allow for tilting.

Jaws are extra heavy, will not bend or spring on a short bite and are faced true. The screws are hardened. Each clamp is boxed separately.

No.	Capacity	Approx. Wt., Lb.
301	Opens to 1¼ Inches	.75
302	Opens to 2¼ Inches	1.00
303	Opens to 3¼ Inches	1.75
304	Opens to 4¼ Inches	2.75

PARALLEL CLAMPS



ARMSTRONG Parallel Clamps are made from a selected grade steel, carefully machined and hardened.

Particularly suited for holding work together in drilling and tapping operations.

Rounded jaw ends permit clamping in close quarters. A spring clip holds the loose jaw in constant alignment when opening or closing the clamp.

Each clamp is boxed separately.

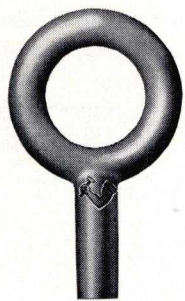
No.	Capacity	Approx. Wt., Lb.
311	1¼-Inch Jaw Opening	.25
313	1¾-Inch Jaw Opening	.66
315	2½-Inch Jaw Opening	1.00



ARMSTRONG EYE BOLTS

PLAIN PATTERN

Blank or Threaded



Blank

ARMSTRONG Eye Bolts are of strong, uniform design, drop forged from the best mild steel, heat treated to give increased tensile strength. All ARMSTRONG Eye Bolts are proof tested under quality control to fifty per cent beyond the "Safe Working Load" to assure proper service at listed capacity.

Threaded Eye Bolts of standard length are in stock; with either American National Coarse (U.S. Std.) or Whitworth Standard (B.S.W.) Threads.

When ordering, please state whether Blank or Threaded are desired; threaded will be supplied unless otherwise specified.

Longer than standard, shorter than standard, and undercut eye bolts available on special order.



Threaded

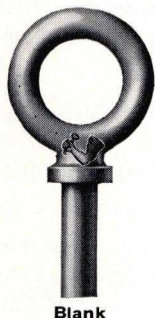
No.	SHANK			DIAMETER EYE		BLANK EYE BOLTS *SAFE WORKING LOAD IN TONS OF 2000 LB.		Approx. Weight Lb.
	Diameter, Blank Inches	Std. Length under Eye, Blank or Threaded Inches	Max- imum Length Blank Inches			Safe Load	Approximate Breaking Strain	
				Inside Inches	Outside Inches			
1	$\frac{1}{4}$	1	$1\frac{1}{8}$	$\frac{3}{4}$	$1\frac{13}{16}$	.2	1.5	.05
2	$\frac{5}{16}$	$1\frac{1}{8}$	$1\frac{1}{8}$	$\frac{7}{8}$	$1\frac{1}{16}$	.4	2.0	.08
3	$\frac{3}{8}$	$1\frac{1}{4}$	$4\frac{1}{2}$	1	$1\frac{21}{32}$	.7	3.0	.20
4	$\frac{7}{16}$	$1\frac{3}{8}$	$4\frac{1}{2}$	$1\frac{3}{32}$	$1\frac{27}{32}$	1.0	4.0	.26
5	$\frac{1}{2}$	$1\frac{1}{2}$	$4\frac{1}{2}$	$1\frac{1}{16}$	$2\frac{1}{16}$	1.3	5.0	.40
6	$\frac{9}{16}$	$1\frac{5}{8}$	$4\frac{1}{2}$	$1\frac{3}{32}$	$2\frac{9}{32}$	1.5	6.0	.54
7	$\frac{5}{8}$	$1\frac{3}{4}$	$4\frac{1}{2}$	$1\frac{3}{8}$	$2\frac{1}{2}$	2.0	8.0	.72
8	$\frac{3}{4}$	2	5	$1\frac{1}{2}$	$2\frac{13}{16}$	3.0	12.0	1.10
9	$\frac{7}{8}$	$2\frac{1}{4}$	5	$1\frac{11}{16}$	$3\frac{1}{4}$	3.5	16.0	1.80
10	1	$2\frac{1}{2}$	5	$1\frac{13}{16}$	$3\frac{9}{16}$	4.0	20.0	2.40
11	$1\frac{1}{8}$	$2\frac{3}{4}$	5	2	4	5.0	23.0	3.50
12	$1\frac{1}{4}$	3	6	$2\frac{3}{16}$	$4\frac{7}{16}$	7.5	33.0	4.60
14	$1\frac{1}{2}$	$3\frac{1}{2}$	6	$2\frac{1}{2}$	$5\frac{3}{16}$	9.0	42.0	7.50
15	$1\frac{3}{4}$	$3\frac{3}{4}$	6	$2\frac{7}{8}$	$6\frac{1}{16}$	11.0	53.0	12.50
16	2	4	6	$3\frac{1}{4}$	$6\frac{7}{8}$	13.0	68.0	18.00
17	$2\frac{1}{2}$	5	6	4	$8\frac{9}{16}$	16.0	85.0	31.00

SHOULDER PATTERN

On standard length Threaded Eye Bolts of Shoulder Pattern the thread runs within 1/8 to 3/8 inch of shoulder, which is faced.*

Threaded Eye Bolts will be supplied unless Blank is specified.

Special Eye Bolts, longer than standard, shorter than standard, and undercut eye bolts available on special order.



Blank

No.	SHANK			DIAMETER EYE		BLANK EYE BOLTS *SAFE WORKING LOAD IN TONS OF 2000 LB.		Approx. Weight Lb.
	Diam., Blank Inches	Std. Length under Eye, Blank or Threaded Inches	Max- imum Length Blank Inches	Inside Inches	Outside Inches	Safe Load Inches	Approximate Breaking Strain	
21	1/4	1	3	3/4	1 1/16	.2	1.5	.05
22	5/16	1 1/8	4	7/8	1 1/16	.4	2.0	.10
23	3/8	1 1/4	4 1/2	1	1 1/32	.7	3.0	.20
24	7/16	1 3/8	4 1/2	1 3/32	1 7/32	1.0	4.0	.26
25	1/2	1 1/2	4 1/2	1 3/16	2 1/16	1.3	5.0	.40
26	9/16	1 5/8	4 1/2	1 5/16	2 3/32	1.5	6.0	.54
27	5/8	1 3/4	4 1/2	1 3/8	2 1/2	2.0	8.0	.72
28	3/4	2	5	1 1/2	2 13/16	3.0	12.0	1.10
29	7/8	2 1/4	5	1 11/16	3 1/4	3.5	16.0	1.80
30	1	2 1/2	5	1 13/16	3 9/16	4.0	20.0	2.40
31	1 1/8	2 3/4	5	2	4	5.0	23.0	3.50
32	1 1/4	3	6	2 3/16	4 7/16	7.5	33.0	4.60
34	1 1/2	3 1/2	6	2 1/2	5 3/16	9.0	42.0	7.50
35	1 3/4	3 3/4	6	2 7/8	6 1/16	11.0	53.0	12.50
36	2	4	6	3 1/4	6 7/8	13.0	68.0	18.00



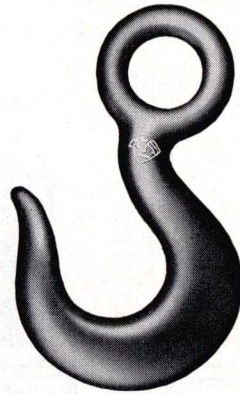
Threaded

*Proper safety factor should be used in figuring working load.



ARMSTRONG HOIST HOOKS

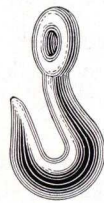
Drop Forged Selected Steel



ARMSTRONG Drop Forged Hoist Hooks are furnished in a complete range of sizes from the smallest with a safe working load of half a ton to the largest with a safe working load of 25 tons.

The maximum load is four times the safe working load and the elastic limit is approximately twice the working load.

All ARMSTRONG Hoist Hooks are drop forged from the best mild steel and are heat treated to give increased tensile strength.



The No. 27 hoist hook with eye at right angles, as shown in the small illustration at the left, is recommended for safety chains on railroad cars and can be furnished to order in reasonable quantities.

No.	DIAMETER OF EYE		Opening of Throat Inches	EXTREME DIMENSIONS		CAPACITY NET TONS			Approximate Weight Lb.
	Inside Inches	Outside Inches		Length Inches	Width Inches	Safe Working Load	Average Load of Elastic Limit	Approximate Load Required to Straighten Out	
22	$\frac{3}{4}$	$1\frac{1}{2}$	1	$4\frac{3}{8}$	$27\frac{7}{8}$	.5	.9	1.9	.53
23	$\frac{7}{8}$	$1\frac{3}{4}$	$1\frac{1}{16}$	$4\frac{7}{8}$	$31\frac{1}{8}$	.6	1.2	2.3	.75
24	1	2	$1\frac{1}{8}$	$5\frac{3}{8}$	$31\frac{1}{2}$	.7	1.5	3.0	1.00
25	$1\frac{1}{8}$	$2\frac{1}{4}$	$1\frac{1}{4}$	$6\frac{3}{16}$	$37\frac{7}{8}$	1.2	2.5	5.7	1.50
26	$1\frac{1}{4}$	$2\frac{1}{2}$	$1\frac{3}{8}$	$6\frac{7}{8}$	$43\frac{3}{8}$	1.7	3.5	7.0	2.20
27	$1\frac{3}{8}$	$2\frac{3}{4}$	$1\frac{1}{2}$	$7\frac{3}{8}$	$47\frac{7}{8}$	2.1	4.2	8.5	3.00
28	$1\frac{1}{2}$	3	$1\frac{3}{4}$	$8\frac{9}{16}$	$55\frac{3}{8}$	2.5	5.4	10.0	4.40
29	$1\frac{5}{8}$	$3\frac{1}{4}$	$1\frac{7}{8}$	$9\frac{9}{16}$	$63\frac{3}{8}$	3.0	6.2	13.0	6.00
30	$1\frac{3}{4}$	$3\frac{1}{2}$	$2\frac{1}{16}$	$10\frac{3}{8}$	$67\frac{7}{8}$	4.0	8.0	17.0	8.00
31	2	4	$2\frac{1}{4}$	$11\frac{1}{2}$	$71\frac{1}{2}$	4.7	9.0	19.0	10.30
32	$2\frac{3}{8}$	$4\frac{5}{8}$	$2\frac{1}{2}$	13	$81\frac{1}{4}$	5.5	11.0	26.0	14.00
33	$2\frac{3}{4}$	$5\frac{1}{4}$	3	$14\frac{3}{4}$	$91\frac{1}{4}$	6.8	13.0	32.0	20.00
34	$3\frac{1}{8}$	$6\frac{1}{8}$	$3\frac{3}{8}$	$16\frac{3}{4}$	11	8.0	17.0	35.0	31.50
35	$3\frac{1}{2}$	7	4	$19\frac{1}{8}$	$13\frac{1}{2}$	11.0	21.0	48.0	51.70
36	4	$8\frac{1}{2}$	$4\frac{1}{2}$	$22\frac{3}{4}$	15	20.0	40.0	80.0	86.00
*36A	4	$8\frac{1}{2}$	$4\frac{1}{2}$	$22\frac{3}{4}$	15	25.0	50.0	....	88.00

*No. 36A Hook is made from special alloy steel; others from carbon steel.

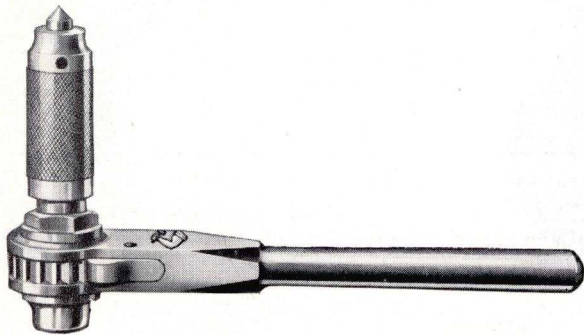


ARMSTRONG IMPROVED PACKER RATCHET DRILLS

ARMSTRONG Packer Ratchets embody the following advantages and improvements: all parts are steel, hardened; no small screws—spindle bears on a strong collar nut; extra strong teeth and pawl, large key and ample bearings; have shorter head with full length feed; the pawl drives on drill shank, not above it.

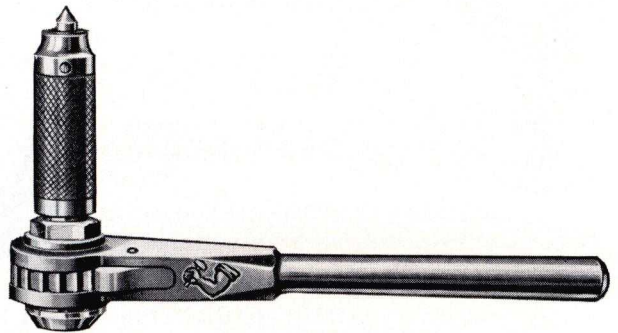
Each ratchet is boxed separately.

Sleeve Ratchets with Morse Taper Socket



No.	Length Inches	Size Drill Socket Morse No.	Takes Morse Taper Drill Inches	Length of Head Inches	Feed Inches	Approx. Weight Lb.
1-M	10	2	$\frac{37}{64}$ to $\frac{29}{32}$	6	$2\frac{1}{4}$	4.0
2-M	12	3	$\frac{59}{64}$ to $1\frac{1}{4}$	$6\frac{3}{4}$	$2\frac{1}{2}$	6.0
4-M	18	4	$1\frac{17}{64}$ to 2	9	$3\frac{1}{2}$	12.0

Sleeve Ratchets with Square Taper Socket



No.	Length Inches	Size of Drill Socket	Length of Head Inches	Feed Inches	Approx. Weight Lb.
2	12	*No. 1 Square Taper	$6\frac{3}{4}$	$2\frac{1}{2}$	6.0
4	18	†No. 2 Square Taper	9	$3\frac{1}{2}$	12.0

ARMSTRONG "STANDARD" REVERSIBLE RATCHET DRILLS

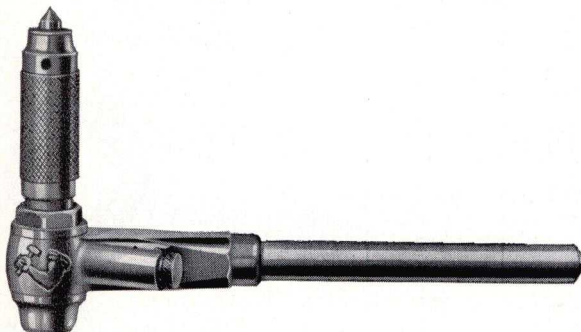
These Ratchet Drills meet the demand for a general service ratchet, which for design, workmanship and wear resisting qualities we believe to be unequalled.

Made of steel throughout and all parts are hardened with the exception of the handle which is steel, polished. Body is drop forged of selected steel.

The reversing "jigger" is well protected and conveniently located, while the end of the handle is finished round and smooth for the operator's hand.

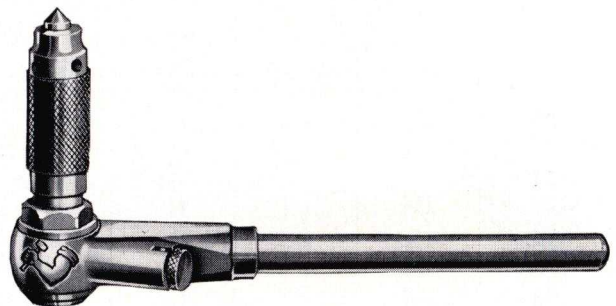
Each ratchet is packed separately in a cardboard box.

Sleeve Ratchets with Morse Taper Socket



No.	Length Inches	Size Drill Socket Morse No.	Takes Morse Taper Drills Inches	Length of Head Inches	Feed Inches	Approx. Weight Lb.
9-M	9	1	$\frac{1}{16}$ to $\frac{9}{16}$	5	2	1.75
12-M	12	2	$\frac{37}{64}$ to $\frac{29}{32}$	6	$2\frac{1}{4}$	4.00
15-M	15	3	$\frac{59}{64}$ to $1\frac{1}{4}$	$6\frac{3}{4}$	$2\frac{1}{2}$	6.25
22-M	22	4	$1\frac{17}{64}$ to 2	9	$3\frac{1}{2}$	13.00

Sleeve Ratchets with Square Taper Socket



No.	Length Inches	Size of Drill Socket	Length of Head Inches	Feed Inches	Approx. Weight Lb.
9	9	Std. Bit Stock Taper	5	2	1.75
12	12	*No. 1 Square Taper	6	$2\frac{1}{4}$	4.00
22	22	†No. 2 Square Taper	9	$3\frac{1}{2}$	13.50

By means of sockets, these ratchets can be adapted to use of blacksmiths' drills with round shank.

By means of sleeves and sockets, standard ratchets with Morse Taper Sockets can be made to take smaller drills, and drills with square taper and blacksmiths' shank.

*Taking drill shank $\frac{3}{8}$ -inch square at small end and $\frac{5}{8}$ -inch square at large end.

†Taking drill shank $\frac{1}{2}$ -inch square at small end and $\frac{3}{4}$ -inch square at large end.



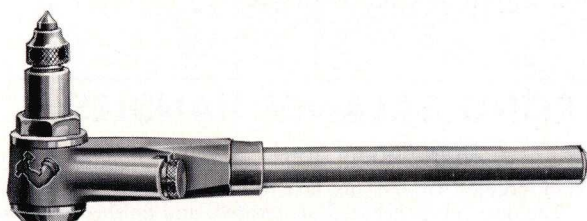
ARMSTRONG "STANDARD" REVERSIBLE RATCHET DRILLS

Made of steel throughout and all parts are hardened with the exception of the handle which is steel, polished. Body is drop forged of selected steel.

Reversing "jigger" is well protected and is conveniently located, while the end of the handle is finished round and smooth for the operator's hand.

Each ratchet is packed separately in a cardboard box.

Boiler Ratchets with Square Taper Socket



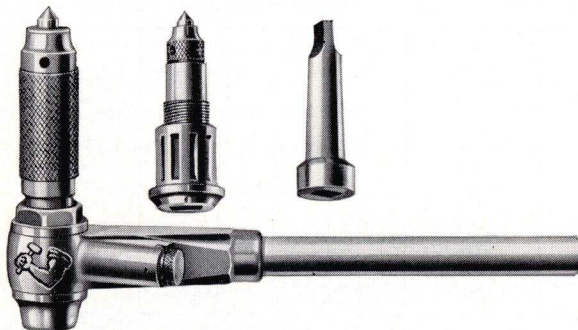
No.	Length Inches	Size of Drill Socket	Length of Head Inches	Feed Inches	Approx. Weight Lb.
9-B	9	Std. Bit Stock Taper	3 $\frac{1}{4}$	1 $\frac{1}{8}$	1.5
12-B	12	*No. 1 Square Taper	4 $\frac{3}{8}$	1 $\frac{1}{2}$	3.5
22-B	22	†No. 2 Square Taper	6	2 $\frac{1}{4}$	11.5

By means of sockets, these ratchets can be adapted to use of blacksmiths' drills with round shank.

*Taking drill shank $\frac{3}{8}$ -inch square at small end and $\frac{5}{8}$ -inch square at large end.

†Taking drill shank $\frac{1}{2}$ -inch square at small end and $\frac{3}{4}$ -inch square at large end.

Standard Ratchet Combination



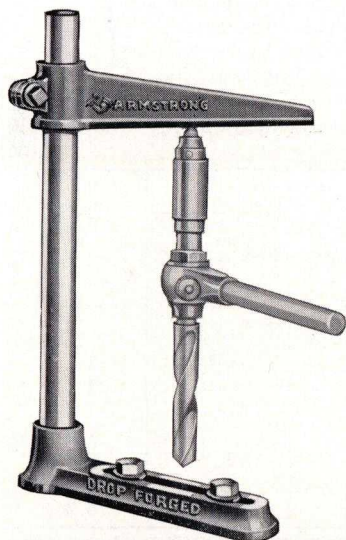
This combination includes sleeve ratchet for Morse Taper Shank Drills, Square Taper Socket to fit same and a short spindle with feed screw by means of which the ratchet can be converted into a boiler ratchet or adapted to use square taper shank drills.

No.	Length Inches	Size of Drill Socket	Approx. Wt., Lb.
9-C	9	Standard Bit Stock and No. 1 Morse	2.50
12-C	12	No. 1 Square Taper and No. 2 Morse	5.25
15-C	15	No. 1 Square Taper and No. 3 Morse	8.00
22-C	22	No. 2 Square Taper and No. 4 Morse	17.00

ARMSTRONG DRILLING POST

For Use with Ratchet Drills

Drop Forged Steel



The foot and arm of ARMSTRONG Drilling Posts are drop forged of selected steel, carefully machined and heat treated.

The finished steel post is screwed into the foot and can be easily removed for packing in a tool kit.

Each drilling post is boxed separately.

No.	Height of Post Inches	Diameter of Post Inches	Arm Radius Inches	Approximate Weight Lb.
10	20	1 $\frac{1}{4}$	10	16.0
12	26	1 $\frac{1}{2}$	12	30.0



ARMSTRONG MACHINE HANDLE FORGINGS

BALL PATTERN



Drop Forged Steel

Unfinished, with Smooth
Planished Surface

CONE PATTERN



PATTERN NUMBER	Ball Pattern									Cone Pattern			
	00	0	1	2	3	4	5	6	7	11	13	15	16
Extreme Length..inches	2	2 $\frac{1}{4}$	2 $\frac{3}{4}$	3 $\frac{1}{4}$	3 $\frac{7}{8}$	4 $\frac{1}{2}$	5 $\frac{1}{8}$	5 $\frac{7}{8}$	6 $\frac{3}{8}$	3 $\frac{1}{2}$	4 $\frac{1}{2}$	5 $\frac{1}{2}$	6
Std. Lgth., Shank...in.	1 $\frac{1}{2}$	1 $\frac{1}{2}$	5 $\frac{7}{8}$	3 $\frac{1}{4}$	7 $\frac{7}{8}$	1	1 $\frac{1}{8}$	1 $\frac{1}{4}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	3 $\frac{1}{4}$	7 $\frac{7}{8}$	1 $\frac{1}{8}$
Diameter Shank.....in.	5 $\frac{1}{16}$	11 $\frac{1}{32}$	13 $\frac{1}{32}$	15 $\frac{1}{32}$	15 $\frac{1}{32}$	17 $\frac{1}{32}$	19 $\frac{1}{32}$	1 $\frac{1}{16}$	3 $\frac{1}{4}$	3 $\frac{1}{8}$	7 $\frac{1}{16}$	1 $\frac{1}{2}$	9 $\frac{1}{16}$
Approx. Weight....lb.	.06	.09	.13	.22	.31	.37	.62	1.3	1.7	.22	.43	.75	1.1

ARMSTRONG BALANCE HANDLES

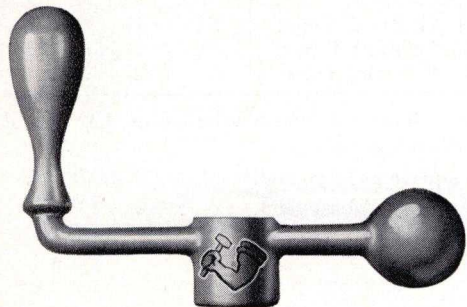
Drop Forged Steel

Unfinished are plain forgings without any hole in hub.

Finished are broached, ground, polished, heat treated, and finished in gray baked-on enamel.

The broached openings are made with corners slightly rounded to prevent breakage and slight clearance is provided.

Holes are regularly finished to standard sizes given below, but each forging admits of broaching to the maximum dimensions stated in table. Smaller openings than standard and special sizes can be broached to order. Handles can also be supplied with round holes in hub; details upon application.



No.	Ctr. Hub to Ctr. Handle, In.	LENGTH		Handle Above Arm Inches	HUB		SQUARE HOLE, SIZE BROACHED		Ball Diam. Inches	Approx. Weight Lb.
		Extreme Inches			Diam. Inches	Length Inches	Std. in Stock, In.	Max. to Order, In.		
512	1 $\frac{1}{4}$	3 $\frac{5}{16}$		1 $\frac{15}{16}$	7 $\frac{7}{8}$	3 $\frac{1}{4}$	7 $\frac{1}{16}$	1 $\frac{1}{2}$	7 $\frac{7}{8}$	.25
516	1 $\frac{5}{8}$	4		2 $\frac{1}{4}$	7 $\frac{7}{8}$	7 $\frac{7}{8}$	7 $\frac{1}{16}$	1 $\frac{1}{2}$	1 $\frac{1}{4}$	.56
*520	2	5		2 $\frac{5}{8}$	1	1 $\frac{15}{16}$	1 $\frac{1}{2}$	5 $\frac{7}{8}$	1 $\frac{1}{4}$	.75
*522	2 $\frac{1}{4}$	5 $\frac{1}{2}$		2 $\frac{3}{4}$	1 $\frac{1}{4}$	1	1 $\frac{1}{2}$	13 $\frac{1}{16}$	1 $\frac{3}{8}$	1.10
*525	2 $\frac{1}{2}$	6		2 $\frac{13}{16}$	1 $\frac{1}{4}$	1 $\frac{1}{8}$	5 $\frac{7}{8}$	13 $\frac{1}{16}$	1 $\frac{7}{16}$	1.30
529	2 $\frac{7}{8}$	7		3 $\frac{5}{16}$	1 $\frac{1}{4}$	1 $\frac{1}{4}$	5 $\frac{7}{8}$	13 $\frac{1}{16}$	1 $\frac{1}{2}$	1.60
434	3 $\frac{3}{8}$	8		3 $\frac{7}{16}$	1 $\frac{1}{2}$	7 $\frac{7}{8}$	5 $\frac{7}{8}$	3 $\frac{1}{4}$	1 $\frac{3}{4}$	1.30
439	3 $\frac{7}{8}$	9		3 $\frac{1}{2}$	1 $\frac{5}{8}$	1 $\frac{1}{16}$	5 $\frac{7}{8}$	3 $\frac{1}{4}$	1 $\frac{3}{4}$	2.80

*Handle cone-shaped; see crank handle. †Hub is a sphere, flattened on top and bottom; full-size drawing on request.

ARMSTRONG CRANK HANDLES

Drop Forged Steel

Unfinished are plain forgings without hole in hub.

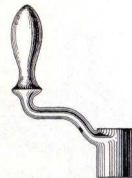
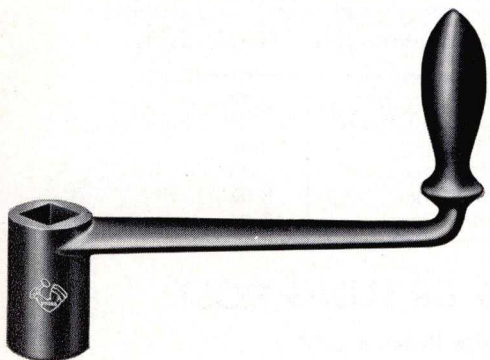
Broached have holes finished and hubs recessed or counter bored in free end, but are otherwise plain forgings.

Finished are broached, counterbored in free end of hub, ground, polished, heat treated, and finished in gray baked-on enamel.

The broached openings are made with corners slightly rounded to prevent breakage and a slight clearance is provided.

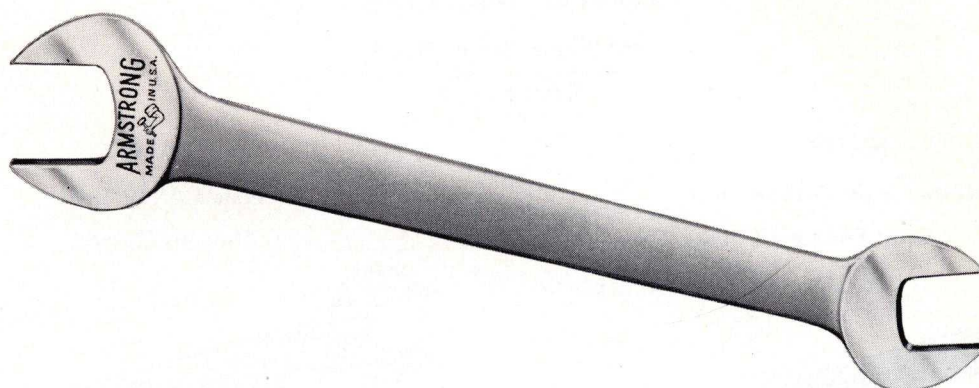
Holes regularly finished to standard sizes given below, but each forging admits of broaching to maximum dimensions stated. Smaller openings than standard and special sizes, running by sixteenths from $\frac{1}{2}$ to 1 inch inclusive, and thence by eighths, can be broached to order at extra cost.

Hubs of broached, or finished can be cut to shorter lengths and handles will be offset (see small illustration) if desired, at additional charge.



No.	LENGTH		Handle Above Arm Inches	HUB		SQUARE HOLE SIZE BROACHED		Approx. Weight Lb.
	Center to Center Inches	Extreme Inches		Diam. Inches	Length Inches	Std. in Stock, In.	Max. to Order, In.	
00	1 $\frac{3}{4}$	2 $\frac{5}{8}$	2 $\frac{3}{8}$	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$	5 $\frac{7}{8}$	.38
0	2 $\frac{1}{4}$	3 $\frac{1}{8}$	2 $\frac{1}{2}$	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$	5 $\frac{7}{8}$	.43
1	3	4	2 $\frac{3}{4}$	1 $\frac{1}{4}$	1 $\frac{1}{2}$	9 $\frac{1}{16}$	13 $\frac{1}{16}$	.78
2	3 $\frac{1}{2}$	4 $\frac{1}{2}$	2 $\frac{7}{8}$	1 $\frac{1}{16}$	1 $\frac{1}{16}$	1 $\frac{1}{2}$	5 $\frac{7}{8}$	.75
4	4	5 $\frac{1}{8}$	3 $\frac{1}{8}$	1 $\frac{1}{4}$	1 $\frac{3}{8}$	9 $\frac{1}{16}$	13 $\frac{1}{16}$	1.
6	5	6 $\frac{1}{8}$	3 $\frac{1}{8}$	1 $\frac{1}{4}$	1 $\frac{13}{16}$	5 $\frac{7}{8}$	13 $\frac{1}{16}$	1.1
8	6	7 $\frac{1}{8}$	3 $\frac{1}{8}$	1 $\frac{1}{4}$	1 $\frac{15}{16}$	11 $\frac{1}{16}$	13 $\frac{1}{16}$	1.2
10	7	8 $\frac{1}{4}$	3 $\frac{3}{8}$	1 $\frac{3}{8}$	2 $\frac{1}{16}$	3 $\frac{1}{4}$	7 $\frac{7}{8}$	1.6
12	8	9 $\frac{3}{8}$	3 $\frac{5}{8}$	1 $\frac{9}{16}$	2 $\frac{7}{16}$	7 $\frac{7}{8}$	1	2.4
14	9 $\frac{1}{8}$	10 $\frac{1}{2}$	3 $\frac{3}{4}$	1 $\frac{1}{2}$	2 $\frac{1}{2}$	7 $\frac{7}{8}$	1	2.5
16	10	11 $\frac{1}{2}$	4	1 $\frac{3}{4}$	3	1	1 $\frac{1}{8}$	3.2

ARMSTRONG WRENCHES



ARMSTRONG HI-TEN and ARMSTRONG ARMALLOY Wrenches are preferred by discriminating buyers and wrench users in every industry.

HI-TEN Wrenches are drop forged from selected high carbon steel which has been shown to possess the requisite qualities that insure stiffness and tensile strength. They are attractively finished in gray baked-on enamel. *The heads are ground bright and plainly stamped with catalog number and nominal size of opening.

ARMALLOY Super Quality Open End and Box Wrenches combine maximum strength with minimum weight. This combination results in wrenches whose strength is based not on bulk but upon excellence of design and material. These wrenches are drop forged from selected alloy steel and are attractively finished in chrome plate. *The heads are buffed bright and plainly stamped with catalog number.

HI-TEN and ARMALLOY Open End Wrenches are accurately milled, smoothly bur-nished, carefully hardened and tempered. All openings are milled slightly larger than nominal sizes listed to allow for proper clearance.

HI-TEN and ARMALLOY Box or Socket Wrenches are broached slightly larger than nominal sizes listed to allow for proper clearance.

WRENCHES WITH SPECIAL OPENINGS—In any size for which we have the necessary tools, wrenches as listed can be furnished with special openings.

SPECIAL PATTERN WRENCHES—In addition to the standard patterns listed, we are also prepared to furnish practically any special wrench in reasonable quantities. Send us your specifications for a quotation.

When ordering wrenches be careful to specify catalog numbers and nominal size of openings as listed.

*Not all wrenches in HI-TEN and ARMALLOY series are finished as described above. For individual wrench descriptions, refer to group headings.



ARMSTRONG WRENCHES

ENGINEERS' PATTERN

15° Angle, Single Head

Drop Forged

HI-TEN

Selected High Carbon Steel

Gray Enameled

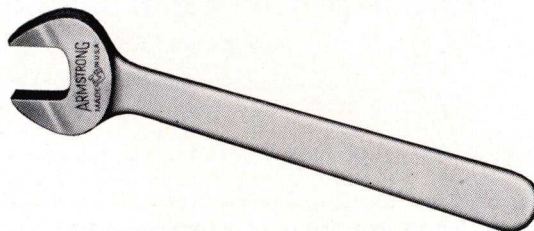


Accurately milled. Smoothly burnished.
Carefully hardened and tempered.
Finished in gray baked-on enamel.
Heads ground bright, stamped with catalog number and nominal opening.

ARMALLOY

Selected Alloy Steel

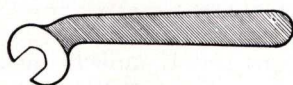
Chrome Plated



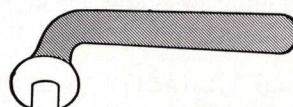
Accurately milled. Smoothly burnished.
Carefully hardened and tempered.
Finished in chrome plate.
Heads buffed bright and stamped with catalog number and nominal opening.

All openings are slightly larger than nominal sizes listed to allow for proper clearance. In stock with openings as listed below.

These wrenches can be furnished bent to 45 or 90° angles on special order.



45° Angle



90° Angle

Wrenches with Whitworth and Metric openings are available on special order.

Hi-Ten Wrenches

Armaloy Wrenches

No.	Nominal Opening Inches	Approximate Extreme Length Inches	Approx. Weight Lb.	No.	Nominal Opening Inches	Approximate Extreme Length Inches	Approx. Weight Lb.
S-000	$\frac{3}{16}$	3	.03	....	..	...	...
S-00	$\frac{1}{4}$	3	.05	....	..	...	...
00	$\frac{5}{16}$	4	.06	1000	$\frac{5}{16}$	4	.06
700	$\frac{3}{8}$	4	.08	1700	$\frac{3}{8}$	4	.08
0	$\frac{13}{32}$	4	.08	1000-A	$\frac{13}{32}$	4	.08
701	$\frac{7}{16}$	$4\frac{1}{2}$	.13	1701	$\frac{7}{16}$	$4\frac{1}{2}$	.13
1	$\frac{1}{2}$	$4\frac{1}{2}$	.13	1001	$\frac{1}{2}$	$4\frac{1}{2}$	.13
702	$\frac{9}{16}$	$5\frac{5}{8}$	.25	1702	$\frac{9}{16}$	$5\frac{5}{8}$	.25
2	$\frac{19}{32}$	$5\frac{5}{8}$	.25	1002	$\frac{19}{32}$	$5\frac{5}{8}$	.25
703	$\frac{5}{8}$	$6\frac{3}{8}$	.33	1703	$\frac{5}{8}$	$6\frac{3}{8}$	.33
3	$\frac{11}{16}$	$6\frac{3}{8}$	.33	1003	$\frac{11}{16}$	$6\frac{3}{8}$	.33
704	$\frac{3}{4}$	$7\frac{1}{4}$	.50	1704	$\frac{3}{4}$	$7\frac{1}{4}$	.63
4	$\frac{25}{32}$	$7\frac{1}{4}$	.50	1004	$\frac{25}{32}$	$7\frac{1}{4}$	.50
705	$\frac{13}{16}$	$8\frac{1}{4}$	.67	1705	$\frac{13}{16}$	$8\frac{1}{4}$	.67
5	$\frac{7}{8}$	$8\frac{1}{4}$	.67	1005	$\frac{7}{8}$	$8\frac{1}{4}$	.67
*6	$\frac{15}{16}$	9	1.00	†1006	$\frac{15}{16}$	9	1.00
†6-C	$\frac{31}{32}$	9	1.00	§1006-C	$\frac{31}{32}$	9	1.00
706	1	9	1.00	1706	1	9	1.00

*Old No. 6-A †Old No. 6

(Continued)

‡Old No. 1006-A. §Old No. 1006.

See chart, page 76, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



ARMSTRONG WRENCHES

ENGINEERS' PATTERN

15° Angle, Single Head

Drop Forged

In stock with openings listed.

Beginning with No. 11, all wrenches have tapered handles.

The following wrenches have hole of diameter given below, in end of handle.

No.	17	17A	18	18A	19	19A	19B	19C	20	20A	20B	21A	21B	21C	22A	22B
Hole. Inches	$\frac{5}{8}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{7}{8}$	$\frac{7}{8}$	$\frac{7}{8}$	$\frac{7}{8}$	1	1	1	$1\frac{1}{8}$	$1\frac{1}{8}$	$1\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{1}{4}$

Hi-Ten Wrenches

(Continued)

Armaloys Wrenches

(Continued)

No.	Nominal Opening Inches	Approximate Extreme Length Inches	Approximate Weight Lb.	No.	Nominal Openings Inches	Approximate Extreme Length Inches	Approximate Weight Lb.
7	$1\frac{1}{16}$	$10\frac{1}{2}$	1.25	1007	$1\frac{1}{16}$	$10\frac{1}{2}$	1.66
707	$1\frac{1}{8}$	$10\frac{1}{2}$	1.25	1707	$1\frac{1}{8}$	$10\frac{1}{2}$	1.66
8	$1\frac{1}{4}$	$11\frac{3}{4}$	1.75	1008	$1\frac{1}{4}$	$11\frac{3}{4}$	2.00
8-A	$1\frac{5}{16}$	$11\frac{3}{4}$	1.75	1008-A	$1\frac{5}{16}$	$11\frac{3}{4}$	2.00
708-A	$1\frac{3}{8}$	$11\frac{3}{4}$	1.75	....	....	....	....
9	$1\frac{7}{16}$	$13\frac{1}{2}$	2.00	1009	$1\frac{7}{16}$	$13\frac{1}{2}$	3.00
709	$1\frac{1}{2}$	$13\frac{1}{2}$	2.00	1709	$1\frac{1}{2}$	$13\frac{1}{2}$	3.00
10	$1\frac{5}{8}$	$15\frac{1}{4}$	4.00	1010	$1\frac{5}{8}$	$15\frac{1}{4}$	4.66
10-A	$1\frac{11}{16}$	$15\frac{1}{4}$	4.00	1010-A	$1\frac{11}{16}$	$15\frac{1}{4}$	4.66
11	$1\frac{3}{8}$	17	5.00	1011	$1\frac{3}{8}$	17	5.66
11-A	$1\frac{7}{8}$	17	5.00	1011-A	$1\frac{7}{8}$	17	5.66
12	2	19	7.00	1012	2	19	8.00
12-A	$2\frac{1}{16}$	19	7.00	1012-A	$2\frac{1}{16}$	19	8.00
13	$2\frac{3}{16}$	21	9.00	1013	$2\frac{3}{16}$	21	10.00
13-A	$2\frac{1}{4}$	21	9.00	1013-A	$2\frac{1}{4}$	21	10.00
14	$2\frac{3}{8}$	23	11.00	1014	$2\frac{3}{8}$	23	11.66
14-A	$2\frac{7}{16}$	23	11.00	1014-A	$2\frac{7}{16}$	23	11.66
15	$2\frac{9}{16}$	25	12.50	....	....	....	....
15-A	$2\frac{5}{8}$	25	12.50	....	....	....	....
16	$2\frac{3}{4}$	27	17.00	....	....	....	....
16-B	$2\frac{13}{16}$	27	17.00	....	....	....	....
16-A	$2\frac{15}{16}$	27	17.00	....	....	....	....
17-A	3	30	20.00	....	....	....	....
17	$3\frac{1}{8}$	30	20.00	....	....	....	....
18-A	$3\frac{3}{8}$	33	30.00	....	....	....	....
18	$3\frac{1}{2}$	33	30.00	....	....	....	....
19-B	$3\frac{3}{4}$	37	38.00	....	....	....	....
19	$3\frac{7}{8}$	37	38.00	....	....	....	....
19-C	$4\frac{1}{8}$	37	38.00	....	....	....	....
19-A	$4\frac{1}{4}$	37	38.00	....	....	....	....
20-B	$4\frac{1}{2}$	42	54.00	....	....	....	....
20	$4\frac{5}{8}$	42	54.00	....	....	....	....
20-A	5	42	54.00	....	....	....	....
21-A	$5\frac{3}{8}$	47	95.00	....	....	....	....
21-B	$5\frac{3}{4}$	47	94.00	....	....	....	....
21-C	$6\frac{1}{8}$	47	85.50	....	....	....	....
22-A	$6\frac{7}{8}$	52	167.00	....	....	....	....
22-B	$7\frac{5}{8}$	52	156.00	....	....	....	....



ARMSTRONG WRENCHES

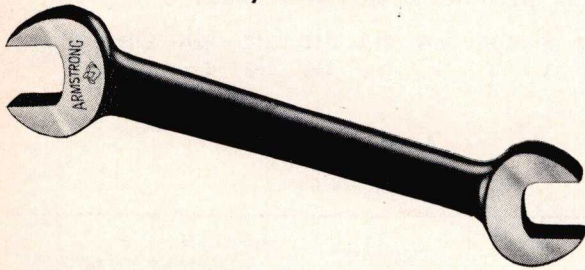
ENGINEERS' PATTERN

15° Angle, Double Head

Drop Forged

HI-TEN

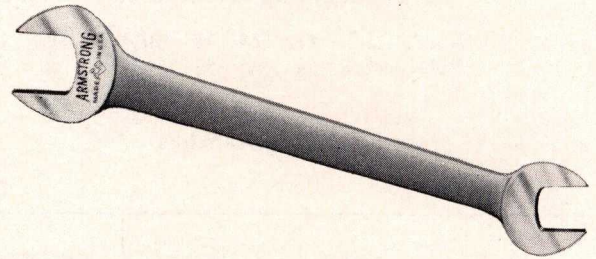
Selected High Carbon Steel
Gray Enameled



Accurately milled. Smoothly burnished.
Carefully hardened and tempered.
Finished in gray baked-on enamel.
Heads ground bright, stamped with catalog number and nominal opening.

ARMALLOY

Selected Alloy Steel
Chrome Plated



Accurately milled. Smoothly burnished.
Carefully hardened and tempered.
Finished in chrome plate.
Heads buffed bright and stamped with catalog number and nominal opening.

All openings are slightly larger than nominal sizes listed to allow for proper clearance. In stock with openings as listed below.

Wrenches with Whitworth and Metric openings are available on special order.

Hi-Ten Wrenches

Arm alloy Wrenches

No.	Nominal Openings Inches	Approximate Extreme Length Inches	Approx. Wt. Lb.	No.	Nominal Openings Inches	Approximate Extreme Length Inches	Approx. Wt. Lb.
.....	.....	...	...	1021-S	$\frac{1}{4}$ & $\frac{5}{16}$	$4\frac{1}{2}$	.05
.....	.....	...	...	1720	$\frac{5}{16}$ & $\frac{11}{32}$	$4\frac{1}{2}$	.05
721	$\frac{5}{16}$ & $\frac{3}{8}$	$4\frac{1}{8}$	.06	1721	$\frac{5}{16}$ & $\frac{3}{8}$	$4\frac{1}{2}$	.05
21	$\frac{5}{16}$ & $\frac{13}{32}$	$4\frac{1}{8}$	.06	1021	$\frac{5}{16}$ & $\frac{13}{32}$	$4\frac{1}{2}$	.05
722	$\frac{5}{16}$ & $\frac{7}{16}$	$5\frac{1}{16}$	.13	.....	.....	...	...
723	$\frac{3}{8}$ & $\frac{7}{16}$	$5\frac{1}{16}$	.13	1723	$\frac{3}{8}$ & $\frac{7}{16}$	$4\frac{7}{8}$	.06
723-A	$\frac{3}{8}$ & $\frac{1}{2}$	$5\frac{1}{2}$	.18	1723-A	$\frac{3}{8}$ & $\frac{1}{2}$	$5\frac{1}{4}$	.08
23	$\frac{13}{32}$ & $\frac{1}{2}$	$5\frac{1}{2}$	.18	1023	$\frac{13}{32}$ & $\frac{1}{2}$	$5\frac{1}{4}$	.08
24	$\frac{13}{32}$ & $\frac{19}{32}$	$5\frac{7}{8}$	.25	.....	.....	...	...
725	$\frac{7}{16}$ & $\frac{1}{2}$	$5\frac{7}{8}$	.25	1725	$\frac{7}{16}$ & $\frac{1}{2}$	$5\frac{5}{8}$	.09
725-A	$\frac{7}{16}$ & $\frac{9}{16}$	$5\frac{7}{8}$	.25	1725-A	$\frac{7}{16}$ & $\frac{9}{16}$	$6\frac{1}{8}$	.13
725-B	$\frac{1}{2}$ & $\frac{9}{16}$	$6\frac{1}{4}$	.31	1725-B	$\frac{1}{2}$ & $\frac{9}{16}$	$6\frac{1}{8}$	.13
25	$\frac{1}{2}$ & $\frac{19}{32}$	$6\frac{1}{4}$	.31	1025	$\frac{1}{2}$ & $\frac{19}{32}$	$6\frac{1}{8}$	.13
726	$\frac{1}{2}$ & $\frac{5}{8}$	$6\frac{3}{4}$	.38	.....	.....	...	...
26	$\frac{1}{2}$ & $\frac{11}{16}$	$6\frac{3}{4}$	.38	.....	.....	...	...
727	$\frac{9}{16}$ & $\frac{5}{8}$	$6\frac{3}{4}$	.38	1727	$\frac{9}{16}$ & $\frac{5}{8}$	$6\frac{3}{8}$	.18
27-C	$\frac{9}{16}$ & $\frac{11}{16}$	$6\frac{3}{4}$	.38	1027-C	$\frac{9}{16}$ & $\frac{11}{16}$	$7\frac{1}{4}$	.19
27	$\frac{19}{32}$ & $\frac{11}{16}$	$7\frac{1}{16}$	.44	1027	$\frac{19}{32}$ & $\frac{11}{16}$	$7\frac{1}{4}$	.19
27-B	$\frac{5}{8}$ & $\frac{11}{16}$	$7\frac{1}{16}$	.44	1027-B	$\frac{5}{8}$ & $\frac{11}{16}$	$7\frac{1}{4}$	.19
728	$\frac{9}{16}$ & $\frac{3}{4}$	$7\frac{1}{4}$	.50	.....	.....	...	...
28	$\frac{19}{32}$ & $\frac{25}{32}$	$7\frac{1}{4}$	.50	1028	$\frac{19}{32}$ & $\frac{25}{32}$	$7\frac{7}{8}$	.25
729	$\frac{5}{8}$ & $\frac{3}{4}$	$7\frac{1}{4}$	.50	1729	$\frac{5}{8}$ & $\frac{3}{4}$	$7\frac{7}{8}$	.25
28-S	$\frac{5}{8}$ & $\frac{25}{32}$	$7\frac{1}{4}$	.50	1028-S	$\frac{5}{8}$ & $\frac{25}{32}$	$7\frac{7}{8}$	.25
29-B	$\frac{11}{16}$ & $\frac{3}{4}$	$8\frac{1}{8}$	.56	1029-B	$\frac{11}{16}$ & $\frac{3}{4}$	$8\frac{1}{2}$	.37
29	$\frac{11}{16}$ & $\frac{25}{32}$	$8\frac{1}{8}$	.56	1029	$\frac{11}{16}$ & $\frac{25}{32}$	$8\frac{1}{2}$	.37
29-C	$\frac{11}{16}$ & $\frac{13}{16}$	$8\frac{1}{8}$	.56	1029-C	$\frac{11}{16}$ & $\frac{13}{16}$	$8\frac{1}{2}$	.37

(Continued)

See chart, page 76, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



ARMSTRONG WRENCHES

ENGINEERS' PATTERN

15° Angle, Double Head

Drop Forged

Hi-Ten Wrenches

(Continued)

Armaloay Wrenches

(Continued)

No.	Nominal Openings Inches	Approximate Extreme Length Inches	Approx. Weight Lb.	No.	Nominal Openings Inches	Approximate Extreme Length Inches	Approx. Weight Lb.
730	$\frac{5}{8}$ & $\frac{13}{16}$	$8\frac{1}{2}$	.65	.....	.....	....	...
30	$\frac{11}{16}$ & $\frac{7}{8}$	$8\frac{1}{2}$	.65	1030	$\frac{11}{16}$ & $\frac{7}{8}$	$8\frac{1}{2}$	.37
731	$\frac{3}{4}$ & $\frac{13}{16}$	$9\frac{1}{4}$	.88	1731	$\frac{3}{4}$ & $\frac{13}{16}$	$9\frac{1}{4}$	.50
731-A	$\frac{3}{4}$ & $\frac{7}{8}$	$9\frac{1}{4}$	.88	1731-A	$\frac{3}{4}$ & $\frac{7}{8}$	$9\frac{1}{4}$	.50
31-B	$\frac{25}{32}$ & $\frac{13}{16}$	$9\frac{1}{4}$	.88	1031-B	$\frac{25}{32}$ & $\frac{13}{16}$	$9\frac{1}{4}$	.50
31	$\frac{25}{32}$ & $\frac{7}{8}$	$9\frac{1}{4}$	.88	1031	$\frac{25}{32}$ & $\frac{7}{8}$	$9\frac{1}{4}$	.50
731-B	$\frac{13}{16}$ & $\frac{7}{8}$	$9\frac{1}{4}$	.88	1731-B	$\frac{13}{16}$ & $\frac{7}{8}$	$9\frac{1}{4}$	.50
32-B	$\frac{13}{16}$ & $\frac{13}{16}$	$9\frac{13}{16}$	1.00	1032-B	$\frac{13}{16}$ & $\frac{13}{16}$	$9\frac{1}{4}$	.50
33-A	$\frac{7}{8}$ & $\frac{13}{16}$	$9\frac{13}{16}$	1.00	1033-A	$\frac{7}{8}$ & $\frac{13}{16}$	10	.62
733	$\frac{7}{8}$ & 1	$9\frac{13}{16}$	1.00	1733	$\frac{7}{8}$ & 1	$10\frac{7}{8}$	.75
33-C	$\frac{15}{16}$ & 1	$9\frac{13}{16}$	1.00	1033-C	$\frac{15}{16}$ & 1	$10\frac{7}{8}$	.75
34	$\frac{7}{8}$ & $\frac{11}{16}$	$11\frac{1}{4}$	1.50	1034	$\frac{7}{8}$ & $\frac{11}{16}$	$11\frac{3}{4}$	1.00
734	$\frac{7}{8}$ & $\frac{11}{8}$	$11\frac{1}{4}$	1.50	.....	.....	....	...
34-A	$\frac{15}{16}$ & $\frac{11}{16}$	$11\frac{1}{4}$	1.50	1034-A	$\frac{15}{16}$ & $\frac{11}{16}$	$11\frac{3}{4}$	1.00
734-A	$\frac{15}{16}$ & $\frac{11}{8}$	$11\frac{1}{4}$	1.50	1734-A	$\frac{15}{16}$ & $\frac{11}{8}$	$11\frac{3}{4}$	1.00
35	$\frac{31}{32}$ & $\frac{11}{16}$	$11\frac{1}{4}$	1.50	1035	$\frac{31}{32}$ & $\frac{11}{16}$	$11\frac{3}{4}$	1.00
735	1 & $\frac{11}{8}$	$11\frac{1}{4}$	1.50	1735	1 & $\frac{11}{8}$	$11\frac{3}{4}$	1.00
36-B	$\frac{11}{16}$ & $\frac{11}{8}$	$12\frac{1}{4}$	2.19	1036-B	$\frac{11}{16}$ & $\frac{11}{8}$	$12\frac{3}{4}$	1.50
37	$\frac{11}{16}$ & $\frac{11}{4}$	$12\frac{1}{4}$	2.19	1037	$\frac{11}{16}$ & $\frac{11}{4}$	$12\frac{3}{4}$	1.50
737	$\frac{11}{8}$ & $\frac{11}{4}$	$12\frac{1}{4}$	2.19	1737	$\frac{11}{8}$ & $\frac{11}{4}$	$12\frac{3}{4}$	1.50
37-A	$\frac{11}{8}$ & $\frac{13}{16}$	$12\frac{1}{4}$	2.19	1037-A	$\frac{11}{8}$ & $\frac{13}{16}$	$12\frac{3}{4}$	1.50
39-B	$\frac{11}{4}$ & $\frac{15}{16}$	$13\frac{3}{4}$	2.50	1039-B	$\frac{11}{4}$ & $\frac{15}{16}$	14	2.18
39	$\frac{11}{4}$ & $\frac{17}{16}$	$13\frac{3}{4}$	2.50	1039	$\frac{11}{4}$ & $\frac{17}{16}$	14	2.18
39-A	$\frac{15}{16}$ & $\frac{11}{2}$	$13\frac{3}{4}$	2.50	1039-A	$\frac{15}{16}$ & $\frac{11}{2}$	14	2.18
39-C	$\frac{13}{8}$ & $\frac{17}{16}$	$13\frac{3}{4}$	2.50	1039-C	$\frac{13}{8}$ & $\frac{17}{16}$	14	2.18
40	$\frac{11}{4}$ & $\frac{15}{8}$	$15\frac{1}{2}$	4.00	1040	$\frac{11}{4}$ & $\frac{15}{8}$	14	2.18
41	$\frac{17}{16}$ & $\frac{15}{8}$	$15\frac{1}{2}$	4.00	1041	$\frac{17}{16}$ & $\frac{15}{8}$	$15\frac{3}{4}$	3.13
41-B	$\frac{11}{2}$ & $\frac{15}{8}$	$15\frac{1}{2}$	4.00	1041-B	$\frac{11}{2}$ & $\frac{15}{8}$	$15\frac{3}{4}$	3.13
42	$\frac{17}{16}$ & $\frac{113}{16}$	17	5.00	.....	.....	....	...
42-A	$\frac{11}{2}$ & $\frac{113}{16}$	17	5.00	.....	.....	....	...
43	$\frac{15}{8}$ & $\frac{113}{16}$	17	5.00	.....	.....	....	...
44	$\frac{15}{8}$ & 2	19	7.50	.....	.....	....	...
44-A	$\frac{111}{16}$ & $\frac{17}{8}$	19	7.50	.....	.....	....	...
45	$\frac{113}{16}$ & 2	19	7.50	.....	.....	....	...
45-A	$\frac{17}{8}$ & $\frac{21}{16}$	19	7.50	.....	.....	....	...
47	2 & $\frac{23}{16}$	21	10.00	.....	.....	....	...
47-B	$\frac{21}{16}$ & $\frac{21}{4}$	21	10.00	.....	.....	....	...
48	2 & $\frac{23}{8}$	23	13.00	.....	.....	....	...
49	$\frac{23}{16}$ & $\frac{23}{8}$	23	13.00	.....	.....	....	...
49-A	$\frac{21}{4}$ & $\frac{27}{16}$	23	13.00	.....	.....	....	...
51	$\frac{23}{8}$ & $\frac{29}{16}$	25	15.50	.....	.....	....	...
51-A	$\frac{27}{16}$ & $\frac{25}{8}$	25	15.50	.....	.....	....	...
53	$\frac{29}{16}$ & $\frac{23}{4}$	27	17.50	.....	.....	....	...
53-A	$\frac{25}{8}$ & $\frac{213}{16}$	27	17.50	.....	.....	....	...
54-C	$\frac{23}{4}$ & $\frac{215}{16}$	31	24.00	.....	.....	....	...
55-A	$\frac{213}{16}$ & 3	32	26.00	.....	.....	....	...
55-B	$\frac{215}{16}$ & $\frac{31}{8}$	32	26.00	.....	.....	....	...
57-B	3 & $\frac{33}{8}$	37	40.00	.....	.....	....	...
57	$\frac{31}{8}$ & $\frac{31}{2}$	37	40.00	.....	.....	....	...
58-A	$\frac{33}{8}$ & $\frac{33}{4}$	37	48.00	.....	.....	....	...
58	$\frac{31}{2}$ & $\frac{37}{8}$	37	46.00	.....	.....	....	...
60-A	$\frac{33}{4}$ & $\frac{41}{8}$	40	48.50	.....	.....	....	...
60	$\frac{37}{8}$ & $\frac{41}{4}$	40	47.00	.....	.....	....	...
62-A	$\frac{41}{8}$ & $\frac{41}{2}$	43	66.00	.....	.....	....	...
62	$\frac{41}{4}$ & $\frac{45}{8}$	43	66.50	.....	.....	....	...
63-A	$\frac{45}{8}$ & 5	47	95.00	.....	.....	....	...
64-A	5 & $\frac{53}{8}$	47	113.50	.....	.....	....	...

See chart, page 76, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



ARMSTRONG ENGINEERS' WRENCH SETS

15° Angle, Double Head

Drop Forged

HI-TEN

Selected Steel

Set No. 9-38R



Nine wrenches, openings $\frac{3}{8}$ to $1\frac{5}{8}$ "; no duplications.

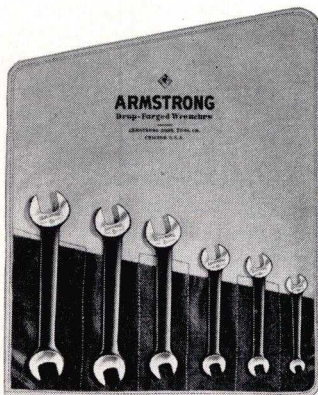
No.	Nominal Openings Inches	Approximate Extreme Length, Inches
723	$\frac{3}{8}$ & $\frac{7}{16}$	$5\frac{1}{16}$
25	$\frac{1}{2}$ & $\frac{19}{32}$	$6\frac{1}{4}$
727	$\frac{9}{16}$ & $\frac{5}{8}$	$6\frac{3}{4}$
29	$\frac{11}{16}$ & $\frac{25}{32}$	$8\frac{1}{8}$
731-A	$\frac{3}{4}$ & $\frac{7}{8}$	$9\frac{1}{4}$
33-C	$\frac{15}{16}$ & 1	$9\frac{13}{16}$
37	$1\frac{1}{16}$ & $1\frac{1}{4}$	$12\frac{1}{4}$
37-A	$1\frac{1}{8}$ & $1\frac{5}{16}$	$12\frac{1}{4}$
41	$1\frac{7}{16}$ & $1\frac{5}{8}$	$15\frac{1}{2}$

Set No. 9-38R, in Roll; Approximate Weight, 10.75 Lb.

Set No. 9-38C, in Cardboard Box; Approximate Wt. 10.25 Lb.

HI-TEN

Set No. 6-26R



Six wrenches, openings $\frac{3}{8}$ to 1"; no duplications.

No.	Nominal Openings Inches	Approximate Extreme Length, Inches
723	$\frac{3}{8}$ & $\frac{7}{16}$	$5\frac{1}{16}$
25	$\frac{1}{2}$ & $\frac{19}{32}$	$6\frac{1}{4}$
727	$\frac{9}{16}$ & $\frac{5}{8}$	$6\frac{3}{4}$
29	$\frac{11}{16}$ & $\frac{25}{32}$	$8\frac{1}{8}$
731-A	$\frac{3}{4}$ & $\frac{7}{8}$	$9\frac{1}{4}$
33-C	$\frac{15}{16}$ & 1	$9\frac{13}{16}$

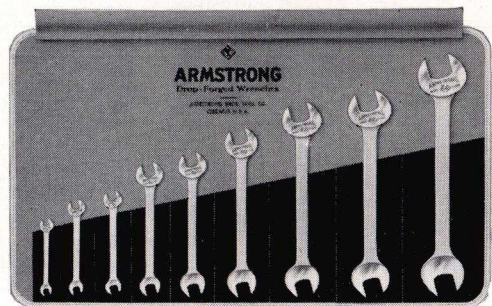
Set No. 6-26R, in Roll; Approximate Weight, 2.75 Lb.

Set No. 6-26C, in Cardboard Box; Approx. Wt., 2.50 Lb.

ARMALLOY

Selected Alloy Steel

Set No. 9A-38R



Nine wrenches, openings $\frac{3}{8}$ to $1\frac{5}{8}$ "; no duplications.

No.	Nominal Openings Inches	Approximate Extreme Length, Inches
1723	$\frac{3}{8}$ & $\frac{7}{16}$	$4\frac{7}{8}$
1025	$\frac{1}{2}$ & $\frac{19}{32}$	$6\frac{1}{8}$
1727	$\frac{9}{16}$ & $\frac{5}{8}$	$6\frac{5}{8}$
1029	$\frac{11}{16}$ & $\frac{25}{32}$	$8\frac{1}{2}$
1731-A	$\frac{3}{4}$ & $\frac{7}{8}$	$9\frac{1}{4}$
1033-C	$\frac{15}{16}$ & 1	$10\frac{7}{8}$
1037	$1\frac{1}{16}$ & $1\frac{1}{4}$	$12\frac{3}{4}$
1037-A	$1\frac{1}{8}$ & $1\frac{5}{16}$	$12\frac{3}{4}$
1041	$1\frac{7}{16}$ & $1\frac{5}{8}$	$15\frac{3}{4}$

Set No. 9A-38R, in Roll; Approximate Weight, 9.5 Lb.

Set No. 9A-38C, in Cardboard Box; Approx. Wt. 9 Lb.

ARMALLOY

Set No. 6A-26R



Six wrenches, openings $\frac{3}{8}$ to 1"; no duplications.

No.	Nominal Openings Inches	Approximate Extreme Length, Inches
1723	$\frac{3}{8}$ & $\frac{7}{16}$	$4\frac{7}{8}$
1025	$\frac{1}{2}$ & $\frac{19}{32}$	$6\frac{1}{8}$
1727	$\frac{9}{16}$ & $\frac{5}{8}$	$6\frac{5}{8}$
1029	$\frac{11}{16}$ & $\frac{25}{32}$	$8\frac{1}{2}$
1731-A	$\frac{3}{4}$ & $\frac{7}{8}$	$9\frac{1}{4}$
1033-C	$\frac{15}{16}$ & 1	$10\frac{7}{8}$

Set No. 6A-26R, in Roll; Approximate Weight, 2.25 Lb.

Set No. 6A-26C, in Cardboard Box; Approx. Wt., 2.00 Lb.

See chart, page 76, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws

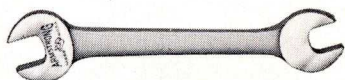


ARMSTRONG ARMALLOY MINIATURE WRENCHES AND SETS

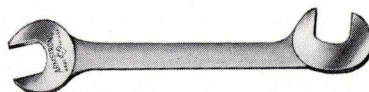
Drop Forged—Selected Alloy Steel

Chrome Plated

Open End Pattern

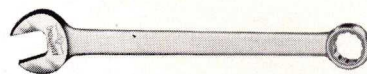


15° Angle Openings



15° and 75° Angle Openings

Combination Pattern



Combination Box and Open End

ARMALLOY Miniature Wrenches are invaluable for accurate work on generators, radios, refrigerator units—in fact any device requiring delicate adjustment is best serviced with these wrenches, furnished in three styles as illustrated. Drop forged from selected alloy steel, accurately milled, smoothly burnished, heat treated and finished in chrome plate with heads buffed bright.

15° Angle Openings

No.	Nominal Openings Inches	Approx. Extreme Length Inches	Approx. Thickness Heads Inches	Approx. Weight Lb.
H-9	$\frac{13}{64}$ & $\frac{15}{64}$	$2\frac{1}{2}$	$\frac{3}{32}$	.02
H-10	$\frac{3}{16}$ & $\frac{7}{32}$	$2\frac{1}{2}$	$\frac{3}{32}$	.02
H-12	$\frac{1}{4}$ & $\frac{9}{32}$	3	$\frac{5}{32}$	.02
H-14	$\frac{5}{16}$ & $\frac{11}{32}$	$3\frac{1}{4}$	$\frac{3}{16}$	.03
H-15	$\frac{9}{32}$ & $\frac{3}{8}$	$3\frac{3}{4}$	$\frac{3}{16}$	.03
H-16	$\frac{3}{8}$ & $\frac{7}{16}$	$4\frac{1}{8}$	$\frac{7}{32}$	.03
H-18	$\frac{13}{32}$ & $\frac{15}{32}$	$4\frac{1}{8}$	$\frac{7}{32}$	.03
.....
.....
.....
.....

15 and 75° Angle Openings

No.	Nominal Openings Inches	Approx. Extreme Length Inches	Approx. Thickness Heads Inches	Approx. Weight Lb.
1112	$\frac{3}{16}$ & $\frac{3}{16}$	3	$\frac{3}{32}$	.01
1113	$\frac{13}{64}$ & $\frac{13}{64}$	3	$\frac{3}{32}$	.01
1114	$\frac{7}{32}$ & $\frac{7}{32}$	3	$\frac{3}{32}$	.01
1115	$\frac{15}{64}$ & $\frac{15}{64}$	3	$\frac{3}{32}$	.01
1116	$\frac{1}{4}$ & $\frac{1}{4}$	3	$\frac{3}{32}$	.01
1118	$\frac{9}{32}$ & $\frac{9}{32}$	$3\frac{3}{4}$	$\frac{1}{8}$	.03
1120	$\frac{5}{16}$ & $\frac{5}{16}$	$3\frac{3}{4}$	$\frac{1}{8}$	.03
1122	$\frac{11}{32}$ & $\frac{11}{32}$	$3\frac{3}{4}$	$\frac{1}{8}$	.04
1124	$\frac{3}{8}$ & $\frac{3}{8}$	$3\frac{3}{4}$	$\frac{1}{8}$	.04
1128	$\frac{7}{16}$ & $\frac{7}{16}$	$4\frac{1}{2}$	$\frac{5}{32}$	.07
1132	$\frac{1}{2}$ & $\frac{1}{2}$	$4\frac{1}{2}$	$\frac{5}{32}$	.07

Combination Box and Open End

No.	Nominal Openings Inches	Approx. Extreme Lgth., In.	Approx. Weight Lb.
1157	$\frac{7}{32}$ & $\frac{7}{32}$	3	.03
1158	$\frac{1}{4}$ & $\frac{1}{4}$	3	.03
1158-A	$\frac{9}{32}$ & $\frac{9}{32}$	$3\frac{1}{2}$.05
1159	$\frac{5}{16}$ & $\frac{5}{16}$	$3\frac{1}{2}$.05
1159-A	$\frac{11}{32}$ & $\frac{11}{32}$	$4\frac{3}{16}$.08
1160	$\frac{3}{8}$ & $\frac{3}{8}$	$4\frac{3}{16}$.08
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.....
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Miniature Set No. H-5R



This set contains one each of Nos. H-10, H-12, H-14, H-16 and H-18 miniature wrenches (see above).

Five wrenches with openings from $\frac{3}{16}$ to $\frac{15}{32}$ ".

No duplications.

In roll or cardboard box.

Set No. H-5C, in Cardboard Box; Approx. Weight, .5 Lb.

Set No. H-5R, in Roll; Approximate Weight, .5 Lb.

Miniature Set No. 1140P



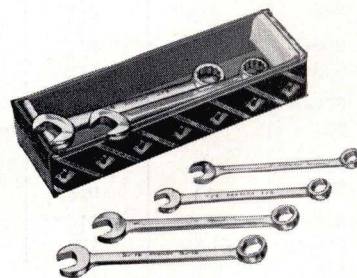
Set No. 1140P, (with pliers) furnished unless otherwise specified, includes 10 miniature wrenches: Nos. 1112, 1113, 1114, 1115, 1116, 1118, 1120, 1122, 1124, 1128 (see above) and 1 pair of No. 1519 electrical pliers.

Complete in roll.

Set No. 1140P, with Pliers; Approximate Weight, .5 Lb.

Set No. 1140, without Pliers; Approximate Weight, .39 Lb.

Miniature Combination Wrench Set No. 1186C



Set No. 1186C contains six miniature combination wrenches Nos. 1157, 1158, 1158A, 1159, 1159A, 1160.

This set ideal for electrical and ignition work. Nominal openings included are $\frac{7}{32}$, $\frac{1}{4}$, $\frac{9}{32}$, $\frac{5}{16}$, $\frac{11}{32}$ and $\frac{3}{8}$ ".

Set No. 1186C, in Cardboard Box; Approximate Weight, .5 Lb.

Set No. 1186R, in Roll; Approximate Weight, .5 Lb.



ARMSTRONG HI-TEN WRENCHES

THIN PATTERN

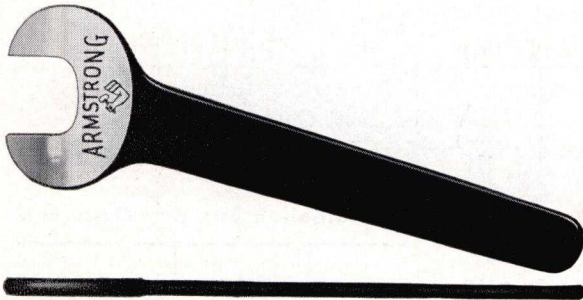
For Check, Jam or Lock Nuts

15° Angle

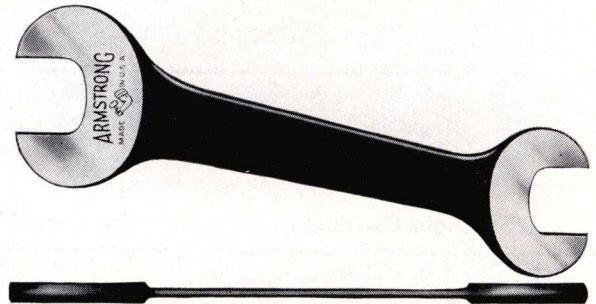
Drop Forged—Selected High Carbon Steel

Gray Enameled

Single Head



Double Head



Accurately milled. Smoothly burnished. Carefully hardened and tempered. Attractively finished in gray baked-on enamel.

Heads ground bright and stamped with catalog number and nominal size of openings.

All openings slightly larger than nominal size listed to allow for proper clearance. In stock with openings as listed below.

Wrenches with Whitworth and Metric openings are available on special order.

Single Head Wrenches

No.	Nominal Opening Inches	Approx. Extreme Length Inches	Thickness Head Inches	Approx. Weight Lb.
601-A	$\frac{7}{16}$	4	$\frac{5}{32}$	.08
601	$\frac{1}{2}$	4	$\frac{5}{32}$	.08
602-A	$\frac{9}{16}$	$4\frac{1}{2}$	$\frac{11}{64}$	.13
602	$\frac{19}{32}$	$4\frac{1}{2}$	$\frac{11}{64}$	.13
603-A	$\frac{5}{8}$	$5\frac{1}{4}$	$\frac{3}{16}$	.17
603	$\frac{11}{16}$	$5\frac{1}{4}$	$\frac{3}{16}$	.17
604-A	$\frac{3}{4}$	6	$\frac{7}{32}$	.25
604	$\frac{25}{32}$	6	$\frac{7}{32}$	.25
605-A	$\frac{13}{16}$	$6\frac{3}{4}$	$\frac{1}{4}$	.33
605	$\frac{7}{8}$	$6\frac{3}{4}$	$\frac{1}{4}$	.33
606	$\frac{15}{16}$	$7\frac{1}{2}$	$\frac{9}{32}$	.50
*606-C	$\frac{31}{32}$	$7\frac{1}{2}$	$\frac{9}{32}$	.50
606-B	1	$7\frac{1}{2}$	$\frac{9}{32}$	.50
607	$\frac{11}{16}$	$8\frac{1}{2}$	$\frac{5}{16}$	.60
607-A	$\frac{11}{8}$	$8\frac{1}{2}$	$\frac{5}{16}$	.60
608	$\frac{11}{4}$	10	$\frac{3}{8}$	1.00
608-A	$\frac{13}{16}$	10	$\frac{3}{8}$	1.00
609	$\frac{17}{16}$	$11\frac{1}{2}$	$\frac{7}{16}$	1.50
609-A	$\frac{11}{2}$	$11\frac{1}{2}$	$\frac{7}{16}$	1.50
610	$\frac{15}{8}$	13	$\frac{1}{2}$	2.50
610-A	$\frac{111}{16}$	13	$\frac{1}{2}$	2.50

Double Head Wrenches

No.	Nominal Openings Inches	Approx. Extreme Length Inches	Thickness Head Inches	Approx. Weight Lb.
623	$\frac{13}{32}$ & $\frac{1}{2}$	$4\frac{3}{8}$	$\frac{5}{32}$	.13
623-D	$\frac{7}{16}$ & $\frac{1}{2}$	$4\frac{1}{2}$	$\frac{5}{32}$	.13
624-A	$\frac{7}{16}$ & $\frac{9}{16}$	$4\frac{1}{2}$	$\frac{5}{32}$	.13
624-B	$\frac{1}{2}$ & $\frac{9}{16}$	$4\frac{1}{2}$	$\frac{5}{32}$	.13
625	$\frac{1}{2}$ & $\frac{19}{32}$	$4\frac{1}{2}$	$\frac{5}{32}$	.13
626-S	$\frac{9}{16}$ & $\frac{5}{8}$	$5\frac{5}{8}$	$\frac{3}{16}$	.20
627	$\frac{19}{32}$ & $\frac{11}{16}$	$5\frac{5}{8}$	$\frac{3}{16}$	.20
629-D	$\frac{5}{8}$ & $\frac{3}{4}$	$6\frac{1}{4}$	$\frac{3}{16}$	.33
629	$\frac{11}{16}$ & $\frac{25}{32}$	$6\frac{1}{4}$	$\frac{3}{16}$	.33
630	$\frac{11}{16}$ & $\frac{7}{8}$	$6\frac{1}{2}$	$\frac{7}{32}$	.33
630-B	$\frac{3}{4}$ & $\frac{13}{16}$	$6\frac{5}{8}$	$\frac{7}{32}$	.33
630-E	$\frac{3}{4}$ & $\frac{7}{8}$	$6\frac{5}{8}$	$\frac{7}{32}$	.33
631	$\frac{25}{32}$ & $\frac{7}{8}$	$6\frac{5}{8}$	$\frac{7}{32}$	.33
631-A	$\frac{13}{16}$ & $\frac{7}{8}$	$6\frac{5}{8}$	$\frac{7}{32}$	.33
632-C	$\frac{7}{8}$ & $\frac{15}{16}$	$8\frac{1}{8}$	$\frac{9}{32}$	.63
634-A	$\frac{7}{8}$ & 1	$8\frac{1}{8}$	$\frac{9}{32}$	.63
634	$\frac{7}{8}$ & $\frac{11}{16}$	8	$\frac{9}{32}$	.63
632-X	$\frac{15}{16}$ & 1	8	$\frac{9}{32}$	.63
634-B	$\frac{15}{16}$ & $\frac{11}{16}$	$8\frac{1}{8}$	$\frac{9}{32}$	.63
635-D	1 & $\frac{11}{8}$	10	$\frac{11}{32}$	1.00
637	$\frac{11}{16}$ & $\frac{11}{4}$	10	$\frac{11}{32}$	1.00
637-A	$\frac{11}{8}$ & $\frac{13}{16}$	10	$\frac{11}{32}$	1.00
639	$\frac{11}{4}$ & $\frac{17}{16}$	12	$\frac{13}{32}$	2.00
640	$\frac{11}{4}$ & $\frac{15}{8}$	12	$\frac{13}{32}$	2.00
640-A	$\frac{15}{16}$ & $\frac{11}{2}$	12	$\frac{13}{32}$	2.00

*Old No. 606.

See chart, page 76, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws

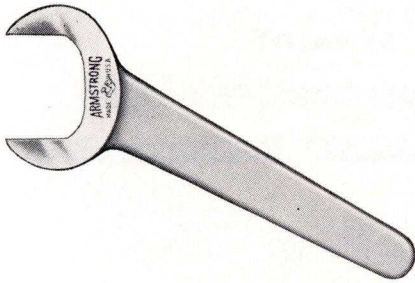


ARMSTRONG ARMALLOY WRENCHES

OPEN END—THIN PATTERN

30° Angle—Single Head

Drop Forged—Selected Alloy Steel Chrome Plated



Accurately milled. Smoothly burnished.

Carefully hardened and tempered.

Finished in chrome plate.

Wrench heads are buffed bright, plainly stamped with catalog number and nominal openings.

Especially designed for adjusting machinery where short handle, thin wrench is required.

Use with added leverage is not recommended.

Wrenches with special openings available on special order.

No.	Nominal Opening Inches	Approx. Extreme Length Inches	HEAD		Approx. Weight Lb.	No.	Nominal Opening Inches	Approx. Extreme Length Inches	HEAD		Approx. Weight Lb.
			Thick-ness Inches	Width Inches					Thick-ness Inches	Width Inches	
1224	$\frac{3}{4}$	7	$\frac{1}{4}$	$1\frac{11}{16}$	.40	1246	$\frac{17}{16}$	$7\frac{3}{4}$	$\frac{9}{32}$	$2\frac{5}{8}$	1.06
*1224-A	$1\frac{1}{8}$	7	$\frac{1}{4}$	$1\frac{11}{16}$	.40	1248	$1\frac{1}{2}$	$7\frac{3}{4}$	$\frac{9}{32}$	$2\frac{5}{8}$	1.06
1226	$\frac{13}{16}$	7	$\frac{1}{4}$	$1\frac{11}{16}$	.40	1250	$\frac{19}{16}$	$7\frac{3}{4}$	$\frac{9}{32}$	$2\frac{5}{8}$	1.06
1228	$\frac{7}{8}$	7	$\frac{1}{4}$	$1\frac{11}{16}$	.40	1252	$1\frac{5}{8}$	$7\frac{3}{4}$	$\frac{9}{32}$	$2\frac{5}{8}$	1.06
1230	$\frac{15}{16}$	7	$\frac{1}{4}$	$1\frac{11}{16}$	.40	1256	$1\frac{3}{4}$	$7\frac{3}{4}$	$\frac{9}{32}$	$2\frac{5}{8}$	1.06
1232	1	7	$\frac{1}{4}$	$1\frac{11}{16}$	.40	†1258	$1\frac{13}{16}$	10	$\frac{5}{16}$	$3\frac{7}{8}$	1.20
1232-A	$1\frac{1}{32}$	7	$\frac{1}{4}$	$1\frac{11}{16}$	.40	†1260	$1\frac{7}{8}$	10	$\frac{5}{16}$	$3\frac{7}{8}$	1.20
1234	$1\frac{1}{16}$	7	$\frac{1}{4}$	$1\frac{7}{8}$	.85	†1262	$1\frac{15}{16}$	10	$\frac{5}{16}$	$3\frac{7}{8}$	1.20
1236	$1\frac{1}{8}$	7	$\frac{1}{4}$	$1\frac{7}{8}$	.85						
1236-S	$1\frac{5}{16}$	7	$\frac{1}{4}$	$1\frac{7}{8}$	.85	†1264	2	10	$\frac{5}{16}$	$3\frac{7}{8}$	1.20
1236-X	$1\frac{3}{16}$	7	$\frac{7}{32}$	$1\frac{7}{8}$	.85	†1264-S	$2\frac{9}{16}$	10	$\frac{5}{16}$	$3\frac{7}{8}$	1.20
1238	$1\frac{1}{16}$	7	$\frac{1}{4}$	$1\frac{7}{8}$	.85	†1266	$2\frac{1}{16}$	10	$\frac{5}{16}$	$3\frac{7}{8}$	1.20
1240	$1\frac{1}{4}$	7	$\frac{1}{4}$	$1\frac{7}{8}$	.85	†1268	$2\frac{1}{8}$	10	$\frac{5}{16}$	$3\frac{7}{8}$	1.20
1241	$1\frac{9}{32}$	7	$\frac{1}{4}$	$1\frac{7}{8}$	.85	†1272	$2\frac{1}{4}$	10	$\frac{5}{16}$	$3\frac{7}{8}$	1.20
1242	$1\frac{3}{16}$	$7\frac{3}{4}$	$\frac{9}{32}$	$2\frac{5}{8}$	1.00	†1276	$2\frac{3}{8}$	10	$\frac{5}{16}$	$3\frac{7}{8}$	1.20
1244	$1\frac{3}{8}$	$7\frac{3}{4}$	$\frac{9}{32}$	$2\frac{5}{8}$	1.00	†1272-S	$2\frac{1}{2}$	10	$\frac{5}{16}$	$3\frac{7}{8}$	1.20

*Extra narrow head for working in close quarters; recommended for light work only. †Furnished in 15° angle only.

STRUCTURAL BOX PATTERN

Double Hexagon (12-Point) Opening

Drop Forged—Selected Alloy Steel Cadmium Plated



Accurately broached. Smoothly burnished. Carefully hardened and tempered.

Finished in cadmium plate.

Wrench plainly stamped with catalog number and nominal opening.

Maximum clearance at the offset allows a full grip on the nut at all times.

Handles are long and tapered for ease in lining up bolt holes.

Wrenches with special openings are available on special order.

No.	Nominal Opening Inches	Approx. Extreme Length Inches	HEAD		Handle Offset at Head Inches	Approx. Weight Lb.	No.	Nominal Opening Inches	Approx. Extreme Length Inches	HEAD		Handle Offset at Head Inches	Approx. Weight Lb.
			Thick-ness Inches	Outside Diam. Inches						Thick-ness Inches	Outside Diam. Inches		
8905-A	$\frac{13}{16}$	12	$\frac{5}{8}$	$1\frac{3}{8}$	$1\frac{1}{8}$	1.15	8910	$1\frac{5}{8}$	$21\frac{1}{2}$	$1\frac{1}{16}$	$2\frac{1}{2}$	$1\frac{5}{8}$	4.64
8905	$\frac{7}{8}$	12	$\frac{5}{8}$	$1\frac{3}{8}$	$1\frac{1}{8}$	1.15	8910-A	$1\frac{11}{16}$	$21\frac{1}{2}$	$1\frac{1}{16}$	$2\frac{1}{2}$	$1\frac{5}{8}$	4.64
8906	$\frac{15}{16}$	$13\frac{1}{2}$	$\frac{3}{4}$	$1\frac{9}{16}$	$1\frac{1}{4}$	1.43	8911	$1\frac{13}{16}$	23	$1\frac{1}{8}$	$2\frac{3}{4}$	$1\frac{11}{16}$	5.88
8906-B	1	$13\frac{1}{2}$	$\frac{3}{4}$	$1\frac{9}{16}$	$1\frac{1}{4}$	1.43	8911-A	$1\frac{7}{8}$	23	$1\frac{1}{8}$	$2\frac{3}{4}$	$1\frac{11}{16}$	5.88
8907	$1\frac{1}{16}$	$14\frac{3}{4}$	$\frac{13}{16}$	$1\frac{11}{16}$	$1\frac{5}{16}$	2.11	8912	2	$24\frac{1}{2}$	$1\frac{1}{4}$	3	$1\frac{13}{16}$	6.51
8907-A	$1\frac{1}{8}$	$14\frac{3}{4}$	$\frac{13}{16}$	$1\frac{11}{16}$	$1\frac{5}{16}$	2.11	8913	$2\frac{3}{16}$	26	$1\frac{3}{8}$	$3\frac{3}{8}$	2	8.41
8908	$1\frac{1}{4}$	17	$\frac{7}{8}$	2	$1\frac{7}{16}$	2.51	8914	$2\frac{3}{8}$	28	$1\frac{1}{2}$	$3\frac{1}{32}$	$2\frac{1}{8}$	9.50
8908-A	$1\frac{3}{16}$	17	$\frac{7}{8}$	2	$1\frac{7}{16}$	2.51	8915	$2\frac{9}{16}$	29	$1\frac{11}{16}$	$3\frac{27}{32}$	$2\frac{1}{4}$	10.60
8909	$1\frac{7}{16}$	21	1	$2\frac{7}{32}$	$1\frac{1}{2}$	3.84	8916	$2\frac{3}{4}$	29	$1\frac{3}{4}$	$4\frac{1}{8}$	$2\frac{3}{8}$	12.10
8909-A	$1\frac{1}{2}$	21	1	$2\frac{7}{32}$	$1\frac{1}{2}$	3.84							

See chart, page 76, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



ARMSTRONG WRENCHES

STRUCTURAL PATTERN

Straight Opening

HI-TEN

Drop Forged—Selected High Carbon Steel



Accurately milled. Carefully hardened and tempered. Grit blasted.

Heads not ground bright. Handles plainly stamped with catalog number and nominal opening.

Handles are extra long and tapered for ease in lining up bolt holes. Offset head allows wrench handle to clear obstructions, enabling the user to keep wrench squarely on nut at all times.

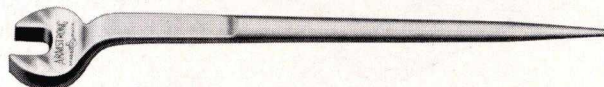
All openings are milled slightly larger than nominal sizes listed to allow for proper clearance.

Wrenches with special openings available on special order.

Wrenches with Whitworth openings available on special order.

ARMALLOY

Drop Forged—Selected Alloy Steel



Accurately milled. Smoothly burnished.

Carefully heat treated.

Finished in cadmium plate. Handles plainly stamped with catalog number and nominal opening.

Hi-Ten Structural Wrenches

Arm Alloy Structural Wrenches

No.	Nominal Opening Inches	Approx. Extreme Length Inches	Thickness Head Inches	Handle Offset at Head Inches	Approx. Weight Lb.	No.	Nominal Opening Inches	Approx. Extreme Length Inches	Thickness Head Inches	Handle Offset at Head Inches	Approx. Weight Lb.
901-A	$\frac{7}{16}$	$9\frac{1}{2}$	$\frac{11}{32}$	$\frac{13}{16}$	.33	.....	...	....	...	...	....
901	$\frac{1}{2}$	$9\frac{1}{2}$	$\frac{11}{32}$	$\frac{13}{16}$	.33	.....	...	....	...	...	....
901-B	$\frac{9}{16}$	$9\frac{1}{2}$	$\frac{11}{32}$	$\frac{13}{16}$	.33	.....	...	....	...	...	....
902	$\frac{19}{32}$	$9\frac{1}{2}$	$\frac{11}{32}$	$\frac{13}{16}$	.33	.....	...	....	...	...	....
903-A	$\frac{5}{8}$	12	$\frac{7}{16}$	$\frac{15}{16}$	.75	.....	...	....	...	...	....
903	$\frac{11}{16}$	12	$\frac{7}{16}$	$\frac{15}{16}$	.75	.....	...	....	...	...	....
904-A	$\frac{3}{4}$	12	$\frac{7}{16}$	$\frac{15}{16}$	.75	.....	...	....	...	...	....
904	$\frac{25}{32}$	12	$\frac{7}{16}$	$\frac{15}{16}$	.75	.....	...	....	...	...	....
905-A	$\frac{13}{16}$	$14\frac{1}{2}$	$\frac{17}{32}$	1	1.25	1905-A	$\frac{13}{16}$	$14\frac{1}{2}$	$\frac{17}{32}$	1	1.25
905	$\frac{7}{8}$	$14\frac{1}{2}$	$\frac{17}{32}$	1	1.25	1905	$\frac{7}{8}$	$14\frac{1}{2}$	$\frac{17}{32}$	1	1.25
906	$\frac{15}{16}$	$14\frac{1}{2}$	$\frac{17}{32}$	1	1.25	.....	...	....	...	...	....
*906-C	$\frac{31}{32}$	$14\frac{1}{2}$	$\frac{17}{32}$	1	1.25	†1906-C	$\frac{31}{32}$	$14\frac{1}{2}$	$\frac{17}{32}$	1	1.25
906-B	1	$14\frac{1}{2}$	$\frac{17}{32}$	1	1.25	1906-B	1	$14\frac{1}{2}$	$\frac{17}{32}$	1	1.25
907	$\frac{11}{16}$	17	$\frac{5}{8}$	$\frac{11}{8}$	2.00	1907	$\frac{11}{16}$	17	$\frac{5}{8}$	$\frac{11}{8}$	2.00
907-A	$\frac{11}{8}$	17	$\frac{5}{8}$	$\frac{11}{8}$	2.00	1907-A	$\frac{11}{8}$	17	$\frac{5}{8}$	$\frac{11}{8}$	2.00
908	$\frac{11}{4}$	19	$\frac{11}{16}$	$\frac{11}{4}$	3.25	1908	$\frac{11}{4}$	19	$\frac{11}{16}$	$\frac{11}{4}$	3.25
908-A	$\frac{15}{16}$	19	$\frac{11}{16}$	$\frac{11}{4}$	3.25	1908-A	$\frac{15}{16}$	19	$\frac{11}{16}$	$\frac{11}{4}$	3.25
909	$\frac{17}{16}$	21	$\frac{3}{4}$	$\frac{15}{16}$	4.25	1909	$\frac{17}{16}$	21	$\frac{3}{4}$	$\frac{15}{16}$	4.25
909-A	$\frac{11}{2}$	21	$\frac{3}{4}$	$\frac{15}{16}$	4.25	1909-A	$\frac{11}{2}$	21	$\frac{3}{4}$	$\frac{15}{16}$	4.25
910	$\frac{15}{8}$	23	$\frac{13}{16}$	$\frac{13}{8}$	5.88	1910	$\frac{15}{8}$	23	$\frac{13}{16}$	$\frac{13}{8}$	5.88
910-A	$\frac{11}{16}$	23	$\frac{13}{16}$	$\frac{13}{8}$	5.88	1910-A	$\frac{11}{16}$	23	$\frac{13}{16}$	$\frac{13}{8}$	5.88
911	$\frac{113}{16}$	25	1	$\frac{11}{2}$	7.50	1911	$\frac{113}{16}$	25	1	$\frac{11}{2}$	7.50
911-A	$\frac{17}{8}$	25	1	$\frac{11}{2}$	7.50	1911-A	$\frac{17}{8}$	25	1	$\frac{11}{2}$	7.50
912	2	25	1	$\frac{11}{2}$	7.50	1912	2	25	1	$\frac{11}{2}$	7.50

*Old No. 906

†Old No. 1906

See chart, page 76, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



ARMSTRONG WRENCHES

CONSTRUCTION PATTERN

15° Angle

HI-TEN

Drop Forged—Selected High Carbon Steel



Accurately milled. Carefully hardened and tempered. Grit blasted.

Heads not ground bright but plainly stamped with catalog number and nominal opening.

Handles are extra long and tapered for ease in lining up bolt holes.

All openings slightly larger than nominal sizes listed to allow for proper clearance.

Wrenches with Whitworth openings are available on special order.

ARMALLOY

Drop Forged—Selected Alloy Steel



Accurately milled. Smoothly burnished. Carefully hardened and tempered. Cadmium plated.

Heads not ground bright but plainly stamped with catalog number and nominal opening.

Hi-Ten Construction Wrenches

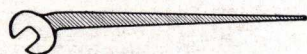
Armaloy Construction Wrenches

No.	Nominal Opening Inches	Approx. Extreme Length, Inches	Head Thickness Inches	Approx. Wt. Lb.	No.	Nominal Opening Inches	Approx. Extreme Length, Inches	Head Thickness Inches	Approx. Wt. Lb.
201-A	$\frac{7}{16}$	$9\frac{1}{2}$	$\frac{3}{8}$	.33	.....	...	....	...	....
201	$\frac{1}{2}$	$9\frac{1}{2}$	$\frac{3}{8}$	.33	.....	...	....	...	....
201-B	$\frac{9}{16}$	$9\frac{1}{2}$	$\frac{3}{8}$	.33	.....	...	....	...	....
202	$\frac{19}{32}$	$9\frac{1}{2}$	$\frac{3}{8}$	.33	.....	...	....	...	....
203-A	$\frac{5}{8}$	12	$\frac{7}{16}$	.50	.....	...	....	...	....
203	$\frac{11}{16}$	12	$\frac{7}{16}$	.50	.....	...	....	...	....
204-A	$\frac{3}{4}$	12	$\frac{7}{16}$	.50	.....	...	....	...	....
204	$\frac{25}{32}$	12	$\frac{7}{16}$	.50	.....	...	....	...	....
205-A	$\frac{13}{16}$	$14\frac{1}{2}$	$\frac{17}{32}$	1.00	1205-A	$\frac{13}{16}$	$14\frac{1}{2}$	$\frac{17}{32}$	1.00
205	$\frac{7}{8}$	$14\frac{1}{2}$	$\frac{17}{32}$	1.00	1205	$\frac{7}{8}$	$14\frac{1}{2}$	$\frac{17}{32}$	1.00
206	$\frac{15}{16}$	$14\frac{1}{2}$	$\frac{17}{32}$	1.00	.....	...	....	...	....
*206-C	$\frac{31}{32}$	$14\frac{1}{2}$	$\frac{17}{32}$	1.00	†206-C	$\frac{31}{32}$	$14\frac{1}{2}$	$\frac{17}{32}$	1.00
206-B	1	$14\frac{1}{2}$	$\frac{17}{32}$	1.00	1206-B	1	$14\frac{1}{2}$	$\frac{17}{32}$	1.00
207	$\frac{11}{16}$	17	$\frac{5}{8}$	1.75	1207	$\frac{11}{16}$	17	$\frac{5}{8}$	1.75
207-A	$\frac{11}{8}$	17	$\frac{5}{8}$	1.75	1207-A	$\frac{11}{8}$	17	$\frac{5}{8}$	1.75
208	$\frac{11}{4}$	19	$\frac{11}{16}$	2.88	1208	$\frac{11}{4}$	19	$\frac{11}{16}$	2.88
208-A	$\frac{15}{16}$	19	$\frac{11}{16}$	2.88	1208-A	$\frac{15}{16}$	19	$\frac{11}{16}$	2.88
209	$\frac{17}{16}$	21	$\frac{3}{4}$	3.50	1209	$\frac{17}{16}$	21	$\frac{3}{4}$	3.50
209-A	$\frac{17}{2}$	21	$\frac{3}{4}$	3.50	1209-A	$\frac{17}{2}$	21	$\frac{3}{4}$	3.50
210	$\frac{15}{8}$	23	$\frac{27}{32}$	5.13	1210	$\frac{15}{8}$	23	$\frac{27}{32}$	5.13
210-A	$\frac{11}{16}$	23	$\frac{27}{32}$	5.13	1210-A	$\frac{11}{16}$	23	$\frac{27}{32}$	5.13
211	$\frac{113}{16}$	25	$\frac{15}{16}$	7.50	1211	$\frac{113}{16}$	25	$\frac{15}{16}$	7.50
211-A	$\frac{17}{8}$	25	$\frac{15}{16}$	7.50	1211-A	$\frac{17}{8}$	25	$\frac{15}{16}$	7.50
212	2	25	$\frac{15}{16}$	7.50	1212	2	25	$\frac{15}{16}$	7.50

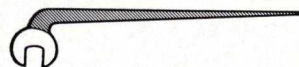
*Old No. 206

†Old No. 1206

15° Angle—With 45° or 90° Bent Handle



45° Bent Handle



90° Bent Handle

Hi-Ten

Armaloy

45° Bent Handle			90° Bent Handle			45° Bent Handle			90° Bent Handle		
No.	Nominal Opening Inches	Approx. Extreme Length, In.	No.	Nominal Opening Inches	Approx. Extreme Length, In.	No.	Nominal Opening Inches	Approx. Extreme Length, In.	No.	Nominal Opening Inches	Approx. Extreme Length, In.
X-205	$\frac{7}{8}$	14	Z-205	$\frac{7}{8}$	14	X-1205	$\frac{7}{8}$	14	Z-1205	$\frac{7}{8}$	14
X-207	$\frac{11}{16}$	$16\frac{1}{2}$	Z-207	$\frac{11}{16}$	$16\frac{1}{2}$	X-1207	$\frac{11}{16}$	$16\frac{1}{2}$	Z-1207	$\frac{11}{16}$	$16\frac{1}{2}$
X-208	$\frac{11}{4}$	$18\frac{1}{2}$	Z-208	$\frac{11}{4}$	$18\frac{1}{2}$	X-1208	$\frac{11}{4}$	$18\frac{1}{2}$	Z-1208	$\frac{11}{4}$	$18\frac{1}{2}$
X-209	$\frac{17}{16}$	$20\frac{3}{8}$	Z-209	$\frac{17}{16}$	$20\frac{3}{8}$	X-1209	$\frac{17}{16}$	$20\frac{3}{8}$	Z-1209	$\frac{17}{16}$	$20\frac{3}{8}$
X-210	$\frac{15}{8}$	$22\frac{1}{4}$	Z-210	$\frac{15}{8}$	$22\frac{1}{4}$	X-1210	$\frac{15}{8}$	$22\frac{1}{4}$	Z-1210	$\frac{15}{8}$	$22\frac{1}{4}$
X-211	$\frac{113}{16}$	24	Z-211	$\frac{113}{16}$	24	X-1211	$\frac{113}{16}$	24	Z-1211	$\frac{113}{16}$	24
X-212	2	24	Z-212	2	24	X-1212	2	24	Z-1212	2	24

On special order, wrenches other than those listed can be furnished with handle bent to 45 or 90°.

See chart, page 76, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



ARMSTRONG ARMALLOY WRENCHES

TAPPET PATTERN

Drop Forged—Selected Alloy Steel

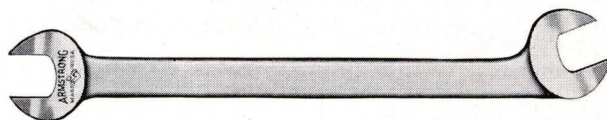
Chrome Plated

Accurately milled. Smoothly burnished. Carefully hardened and tempered. Chrome plated. Wrench heads are buffed bright and plainly stamped with catalog number and nominal opening.

Openings milled slightly larger than nominal sizes listed to allow for proper clearance.

Wrenches with special openings available on special order.

Straight and 22½° Angle Double Head

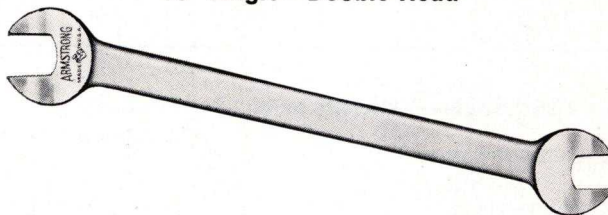


Long narrow jaws facilitate reaching inaccessible tappet nuts. Both openings are same size but at different angles, one straight, one at 22½° allowing for extra fine adjustment.

No.	Nominal Openings Inches	Approx. Extreme Length Inches	Thick- ness Heads Inches	Approx. Weight Lb.	No.	Nominal Openings Inches	Approx. Extreme Length Inches	Thick- ness Heads Inches	Approx. Weight Lb.
401	3/8 & 3/8	8	5/32	.20	405	11/16 & 11/16	8½	3/16	.40
401-A	7/16 & 7/16	8	5/32	.20	406	3/4 & 3/4	9	3/16	.60
402	1/2 & 1/2	8½	5/32	.40	406-A	25/32 & 25/32	9	3/16	.60
402-A	17/32 & 17/32	8½	5/32	.40	407	13/16 & 13/16	9	3/16	.60
403	9/16 & 9/16	8½	5/32	.40	407-A	7/8 & 7/8	9	3/16	.60
403-A	19/32 & 19/32	8½	5/32	.40	408	15/16 & 15/16	9	7/32	.60
404	5/8 & 5/8	8½	3/16	.40	408-A	31/32 & 31/32	9	7/32	.60
404-A	21/32 & 21/32	8½	3/16	.40	409	1 & 1	9	7/32	.60

LONG THIN TAPPET PATTERN

15° Angle—Double Head



Has 15° angle openings at both ends. Different size openings at each end. The long, thin design of this wrench combines lightness with strength.

No.	Nominal Openings Inches	Approx. Extreme Length Inches	Thick- ness Heads Inches	Approx. Weight Lb.	No.	Nominal Openings Inches	Approx. Extreme Length Inches	Thick- ness Heads Inches	Approx. Weight Lb.
1090-A	3/8 & 7/16	8	5/32	.09	1092-F	5/8 & 11/16	8½	3/16	.22
1090	7/16 & 1/2	8	5/32	.09	1094-G	3/4 & 13/16	9	7/32	.34
1090-G	7/16 & 17/32	8	5/32	.19	1094	3/4 & 7/8	9	7/32	.34
1090-D	1/2 & 9/16	8	5/32	.19	1096	15/16 & 1	9	7/32	.34
1092	9/16 & 5/8	8½	3/16	.22	....	.....	...	....	...

See chart, page 76, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



ARMSTRONG ARMALLOY TAPPET WRENCH SETS

15° Angle—Double Head

These Wrench Sets have been selected to include wrenches for the adjustment of tappets on most tractors, trucks and busses as well as passenger cars.



Set No. 1032R

Set consists of six wrenches furnished in pairs, openings for tappets, sizes $\frac{7}{16}$ to $\frac{11}{16}$."

Two Each Nos.	Nominal Openings Inches	Approx. Extreme Length, In.	Approx. Wt. Lb.
1090	$\frac{7}{16}$ & $\frac{1}{2}$	8	.09
1090-D	$\frac{1}{2}$ & $\frac{9}{16}$	8	.19
1092-F	$\frac{5}{8}$ & $\frac{11}{16}$	$8\frac{1}{2}$	.22

Set No. 1032R, in Roll; Approximate Weight, 1 Lb.

Set No. 1032C, in Cardboard Box; Approx. Wt., 1 Lb.



Set No. 1042R

Set consists of eight wrenches, furnished in pairs, openings for tappets, sizes $\frac{7}{16}$ to $\frac{7}{8}$."

Two Each Nos.	Nominal Openings Inches	Approx. Extreme Length, In.	Approx. Wt. Lb.
1090	$\frac{7}{16}$ & $\frac{1}{2}$	8	.09
1090-D	$\frac{1}{2}$ & $\frac{9}{16}$	8	.19
1092-F	$\frac{5}{8}$ & $\frac{11}{16}$	$8\frac{1}{2}$	.22
1094	$\frac{3}{4}$ & $\frac{7}{8}$	9	.34

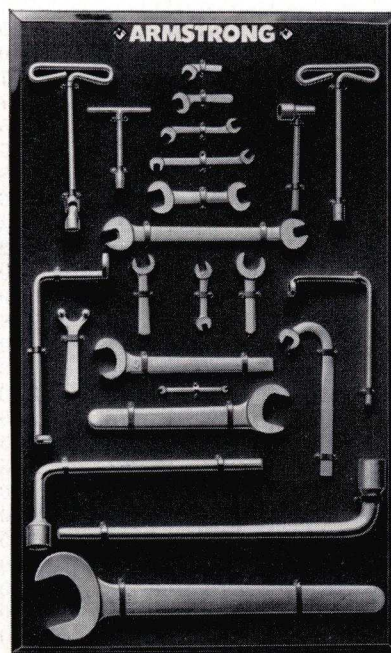
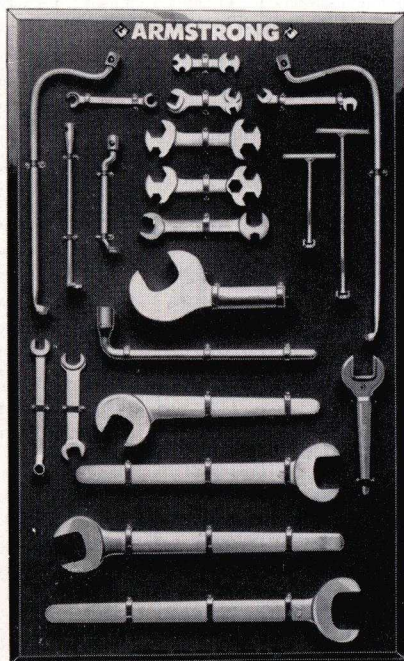
Set No. 1042R, in Roll; Approximate Weight, 2.75 Lb.

Set No. 1042C, in Cardboard Box; Approx. Wt., 2.75 Lb.

See chart, page 76, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws

ARMSTRONG SPECIAL WRENCHES

Illustrated are some of the various types of special wrenches which we have manufactured and for which we have the necessary dies, jigs and fixtures.



When other than stock wrenches are needed for special application, consult your ARMSTRONG representative or write directly to our general offices, Chicago.

A print or sketch should accompany such inquiry.



ARMSTRONG WRENCHES

REGULAR PATTERN BOX

Single Head

HI-TEN HEXAGON BOX

15° Angle—6-Point

Drop Forged—Selected High Carbon Steel
Gray Enameled



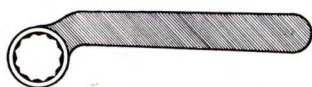
Accurately broached. Smoothly burnished.

Carefully hardened and tempered.

Finished in gray baked-on enamel.

Heads ground bright, stamped with catalog number and nominal opening.

These wrenches can be furnished bent to 45° or 90° angle, on special order, as illustrated below.

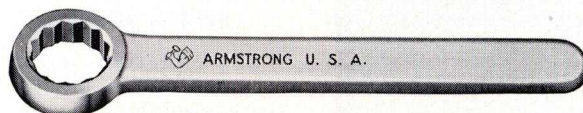


45° Bent Handle

ARMALOY DOUBLE HEXAGON BOX

7½° Angle—12-Point

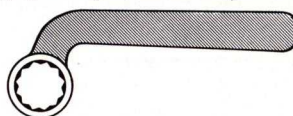
Drop Forged—Selected Alloy Steel
Chrome Plated



Accurately broached. Smoothly burnished. Carefully hardened and tempered. Chrome plated.

Heads faces buffed bright, stamped with catalog number and nominal opening.

Slim head wall permits use where clearance limited. Double hexagon (12-point) opening permits nut to be rotated where swing is limited to 15°.



90° Bent Handle

Wrenches with Whitworth openings available on special order.

Hi-Ten Hexagon Box Wrenches

15° Angle—6-Point

No.	Nominal Opening Across Flats Inches	Approx. Extreme Length Inches	HEAD		Approx. Weight Lb.
			Thickness Inches	Outside Diam. Inches	
801-A	7/16	4	17/64	27/32	.10
801	1/2	4	17/64	27/32	.10
802-A	9/16	4 7/8	5/16	61/64	.17
802	19/32	4 7/8	5/16	61/64	.17
803-A	5/8	5 7/8	23/64	13/32	.25
803	1 1/16	5 7/8	23/64	13/32	.25
804-A	3/4	6 7/8	13/32	1 1/4	.38
804	25/32	6 7/8	13/32	1 1/4	.38
805-A	13/16	7 3/4	29/64	1 1/2	.52
805	7/8	7 3/4	29/64	1 1/2	.52
806	15/16	8 3/4	1/2	1 3/4	.69
*806-C	31/32	8 3/4	1/2	1 3/4	.69
806-B	1	8 3/4	1/2	1 3/4	.69
807	1 1/16	9 7/8	9/16	1 7/8	.80
807-A	1 1/8	9 7/8	9/16	1 7/8	.80
808	1 1/4	11 1/2	9/16	2 1/16	1.40
808-A	1 5/16	11 1/2	9/16	2 1/16	1.40
809	1 7/16	13 3/8	21/32	2 3/8	1.75
809-A	1 1/2	13 3/8	21/32	2 3/8	1.75
810	1 5/8	15 1/4	3/4	2 5/8	2.90
810-A	1 11/16	15 1/4	3/4	2 5/8	2.90
811	1 13/16	17 1/8	13/16	2 23/32	3.10
811-A	1 7/8	17 1/8	13/16	2 23/32	3.10
812	2	19	15/16	3 1/4	4.30
812-A	2 1/16	19	15/16	3 1/4	4.30
813	2 3/16	21	1	3 31/64	5.80
813-A	2 1/4	21	1	3 31/64	5.80
814	2 3/8	23	1 1/16	3 23/32	7.30

Armaloy Double Hexagon Box Wrenches

7½° Angle—12-Point

No.	Nominal Opening Across Flats Inches	Approx. Extreme Length Inches	HEAD		Approx. Weight Lb.
			Thickness Inches	Outside Diam. Inches	
1801-A	7/16	4	17/64	27/32	.11
1801	1/2	4	17/64	27/32	.11
1802-A	9/16	4 7/8	5/16	61/64	.17
1802	19/32	4 7/8	5/16	61/64	.17
1803-A	5/8	5 7/8	23/64	1 3/32	.25
1803	1 1/16	5 7/8	23/64	1 3/32	.25
1804-A	3/4	6 7/8	13/32	1 1/4	.38
1804	25/32	6 7/8	13/32	1 1/4	.38
1805-A	13/16	7 3/4	29/64	1 1/2	.52
1805	7/8	7 3/4	29/64	1 1/2	.52
1806	15/16	8 3/4	1/2	1 3/4	.69
†1806-C	31/32	8 3/4	1/2	1 3/4	.69
1806-B	1	8 3/4	1/2	1 3/4	.69
1807	1 1/16	9 7/8	9/16	1 7/8	.89
1807-A	1 1/8	9 7/8	9/16	1 7/8	.89
1808	1 1/4	11 1/2	9/16	2 1/16	1.40
1808-A	1 5/16	11 1/2	9/16	2 1/16	1.40
1809	1 7/16	13 3/8	21/32	2 3/8	1.75
1809-A	1 1/2	13 3/8	21/32	2 3/8	1.75
1810	1 5/8	15 1/4	3/4	2 5/8	2.90
1810-A	1 11/16	15 1/4	3/4	2 5/8	2.90
1811	1 13/16	17	13/16	2 23/32	3.10
1811-A	1 7/8	17	13/16	2 23/32	3.10
1812	2	19	15/16	3 1/4	4.30
1812-A	2 1/16	19	15/16	3 1/4	4.30
1813	2 3/16	21	1	3 31/64	5.80
1813-A	2 1/4	21	1	3 31/64	5.80
1814	2 3/8	23	1 1/16	3 23/32	7.30

*Old No. 806.

†Old No. 1806.

See chart, page 76, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



ARMSTRONG WRENCHES

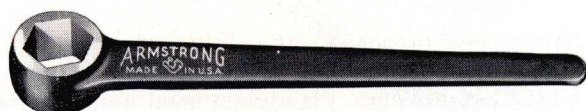
HEAVY PATTERN BOX

Single Head

HI-TEN HEXAGON BOX

15° Angle—6-Point

Drop Forged—Selected High Carbon Steel
Gray Enameled



Accurately broached. Smoothly burnished.

Carefully hardened and tempered.

Finished in gray baked-on enamel.

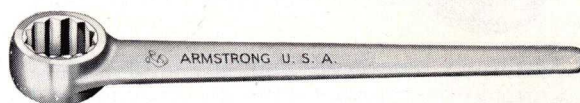
Heads ground bright. Wrench plainly stamped with catalog number and nominal opening.

Designed for severe service where extra strength is required.

ARMALLOY DOUBLE HEXAGON BOX

7½° Angle—12-Point

Drop Forged—Selected Alloy Steel
Chrome Plated



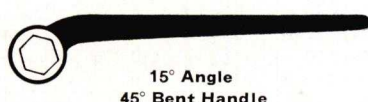
Accurately broached. Smoothly burnished.

Carefully hardened and tempered.

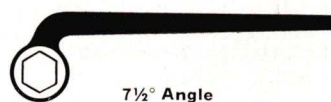
Finished in cadmium plate. Wrench plainly stamped with catalog number and nominal opening.

Especially adapted for working in close quarters. Slim head wall and double hexagon opening permits rotation of nut when limited to a swing of only 15°.

These wrenches can be furnished bent to 45° or 90° angle, on special order, as illustrated below.



15° Angle
45° Bent Handle



7½° Angle
90° Bent Handle

Wrenches with Whitworth openings available on special order.

Hi-Ten Hexagon Box Wrenches

15° Angle—6-Point

No.	Nominal Opening Across Flats Inches	Approx. Extreme Length Inches	HEAD		Approx. Weight Lb.
			Thick-ness Inches	Outside Diam.	
H808	1¼	11½	13/16	21/16	1.6
H808-A	15/16	11½	13/16	21/16	1.6
H809	17/16	133/8	15/16	23/8	2.3
H809-A	1½	133/8	15/16	23/8	2.3
H810	15/8	15¼	11/8	25/8	3.1
H810-A	111/16	15¼	11/8	25/8	3.1
H811	113/16	17	1¼	215/16	3.8
H811-A	17/8	17	1¼	215/16	3.8
H812	2	19	13/8	3¼	5.4
H813	23/16	21	1½	3½	6.5
H813-A	2¼	21	1½	3½	6.5
H814	23/8	23	15/8	3¾	7.8
H815	29/16	25	1¾	41/8	10.3
H815-A	25/8	25	1¾	41/8	10.3
H816	2¾	27	17/8	49/16	12.5
H817-A	3	30	2	413/16	16.3
H817	31/8	30	2	413/16	16.3

Armaloy Double Hexagon Box Wrenches

7½° Angle—12-Point

No.	Nominal Opening Across Flats Inches	Approx. Extreme Length Inches	HEAD		Approx. Weight Lb.
			Thick-ness Inches	Outside Diam. Inches	
H1808	1¼	11½	13/16	21/16	1.6
H1808-A	15/16	11½	13/16	21/16	1.6
H1809	17/16	133/8	15/16	23/8	2.3
H1809-A	1½	133/8	15/16	23/8	2.3
H1810	15/8	15¼	11/8	25/8	3.1
H1810-A	111/16	15¼	11/8	25/8	3.1
H1811	113/16	17	1¼	215/16	3.8
H1811-A	17/8	17	1¼	215/16	3.8
H1812	2	19	13/8	3¼	5.4
H1813	23/16	21	1½	3½	6.5
H1813-A	2¼	21	1½	3½	6.5
H1814	23/8	23	15/8	3¾	7.8
H1815	29/16	25	1¾	41/8	10.3
H1815-A	25/8	25	1¾	41/8	10.3
H1816	2¾	27	17/8	49/16	12.5
H1817-A	3	30	2	413/16	16.3
H1817	31/8	30	2	413/16	16.3

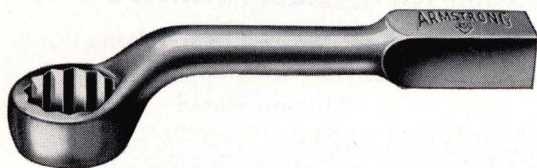


ARMSTRONG WRENCHES

ARMALLOY STRIKING FACE BOX

45° Angle, Offset Pattern

Double Hexagon (12-Point) Opening
Drop Forged—Selected Alloy Steel



Accurately broached. Smoothly burnished.
Carefully heat treated. Finished in cadmium plate.
Plainly stamped with catalog number and nominal opening.

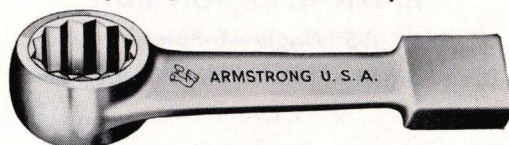
This wrench is designed for rugged service in close quarters where the use of a hammer or sledge is required to set or loosen a nut.

All openings are broached slightly larger than nominal sizes listed to allow for proper clearance. Wrenches with special openings available on special order.

ARMALLOY HEAVY STRIKING FACE BOX

7½° Angle

Double Hexagon (12-Point) Opening
Drop Forged—Selected Alloy Steel



Accurately broached. Smoothly burnished.
Carefully heat treated. Finished in cadmium plate. Heads bright. Plainly stamped with catalog number and nominal opening.

Designed for extra rugged service in close quarters where large nuts must be set up tight, or frozen nuts loosened. Heads are extra thick to afford extra strength and full bearing in extreme service.

No.	Nominal Opening Across Flats, In.	Approx. Extreme Length Inches	HEAD		Approx. Weight Lb.	No.	Nominal Opening Across Flats, In.	Approx. Extreme Length Inches	HEAD		Approx. Weight Lb.
			Thick-ness Inches	Outside Diam. Inches					Thick-ness Inches	Outside Diam. Inches	
8807	1 1/16	10 1/2	13/16	1 27/32	2.15	.....	...	...	...	...	...
8807-A	1 1/8	10 1/2	13/16	1 27/32	2.15	.....	...	...	...	...	...
8808	1 1/4	11	7/8	2 3/32	2.55	SFH-1808	1 1/4	7	13/16	2 1/16	1.36
8808-A	1 3/16	11	7/8	2 3/32	2.55	SFH-1808-A	1 3/16	7	13/16	2 1/16	1.36
8809	1 7/16	11 1/2	1	2 3/8	3.63	SFH-1809	1 7/16	8	15/16	2 3/8	2.06
8809-A	1 1/2	11 1/2	1	2 3/8	3.63	SFH-1809-A	1 1/2	8	15/16	2 3/8	2.06
8810	1 5/8	12	1 1/16	2 5/8	3.88	SFH-1810	1 5/8	9	1 1/8	2 5/8	3.00
8810-A	1 11/16	12	1 1/16	2 5/8	3.88	SFH-1810-A	1 11/16	9	1 1/8	2 5/8	3.00
8811	1 13/16	12 1/2	1 1/8	2 29/32	5.38	SFH-1811	1 13/16	10	1 1/4	2 15/16	3.87
8811-A	1 7/8	12 1/2	1 1/8	2 29/32	5.38	SFH-1811-A	1 7/8	10	1 1/4	2 15/16	3.87
8812	2	13	1 1/4	3 5/32	5.50	SFH-1812	2	11	1 3/8	3 1/4	5.53
8813	2 3/16	13 1/2	1 3/8	3 15/32	7.18	SFH-1813	2 3/16	12	1 1/2	3 1/2	6.77
8813-A	2 1/4	13 1/2	1 3/8	3 15/32	7.18	SFH-1813-A	2 1/4	12	1 1/2	3 1/2	6.77
8814	2 3/8	14	1 1/2	3 23/32	7.91	SFH-1814	2 3/8	13	1 5/8	3 3/4	8.19
8815	2 3/16	14 1/2	1 5/8	3 29/32	9.69	SFH-1815	2 3/16	14	1 3/4	4 1/8	10.70
8815-A	2 5/8	14 1/2	1 5/8	3 29/32	9.69	SFH-1815-A	2 5/8	14	1 3/4	4 1/8	10.78
8816	2 3/4	15	1 3/4	4 5/32	10.78	SFH-1816	2 3/4	15	1 7/8	4 9/16	13.50
8816-B	2 15/16	16	1 7/8	4 21/32	10.78	.....	...	...	...	...	...
8817-A	3	16 1/2	2	4 15/16	11.87	SFH-1817-A	3	17	2	4 13/16	18.80
8817	3 1/8	16 1/2	2	4 15/16	11.87	SFH-1817	3 1/8	17	2	4 13/16	18.80

ARMSTRONG WRENCHES

HI-TEN REGULAR STRIKING FACE BOX

15° Angle, Hexagon (6-Point) Opening

Drop Forged—Selected High Carbon Steel—Gray Enameled



Accurately broached. Smoothly burnished. Carefully hardened. Finished in gray baked-on enamel. Heads ground bright. Plainly stamped with catalog number and nominal opening. Especially designed for heavy work in close quarters where large nuts must be set up, or frozen nuts loosened. Wrenches with special openings available on special order.

No.	Nominal Opening Across Flats, In.	Approx. Extreme Length Inches	HEAD		Approx. Wt. Lb.	No.	Nominal Opening Across Flats, In.	Approx. Extreme Length Inches	HEAD		Approx. Wt. Lb.
			Thick-ness Inches	Outside Diam. Inches					Thick-ness Inches	Outside Diam. Inches	
SF-818-A	3 3/8	18	1 1/2	5 1/4	20.17	SF-819-AC	4 1/8	20	1 3/4	6 1/2	27.93
SF-818	3 1/2	18	1 1/2	5 1/4	20.17	SF-819-A	4 1/4	20	1 3/4	6 1/2	27.93
SF-819B	3 3/4	19	1 5/8	5 7/8	23.60	SF-820-B	4 1/2	21	1 7/8	7	30.80
SF-819	3 7/8	19	1 5/8	5 7/8	23.60	SF-820	4 5/8	21	1 7/8	7	30.80

See chart, page 76, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



ARMSTRONG HI-TEN WRENCHES



CAR PATTERN

22½° Angle—Double Head

Long Leverage

Drop Forged—Selected High Carbon Steel

Accurately milled. Carefully hardened. Grit blasted.
Heads not ground bright but plainly stamped with catalog number and nominal openings.

No.	Nominal Openings Inches	Approximate Extreme Length Inches	Approx. Weight Lb.	No.	Nominal Openings Inches	Approximate Extreme Length Inches	Approx. Weight Lb.
367-A	5/8 & 13/16	12	1.5	378-A	1 1/16 & 1 5/8	22	5.00
367	1 1/16 & 7/8	12	1.5	379	1 1/2 & 1 11/16	22	5.00
370-C	1 3/16 & 7/8	19	3.0	382-A	1 5/8 & 1 13/16	23	5.75
370-A	1 3/16 & 1	19	3.0	382	1 11/16 & 1 7/8	23	5.75
370	7/8 & 1 1/16	19	3.0	383-A	1 7/8 & 2 1/16	23	5.75
370-B	1 & 1 1/8	19	3.0	383-B	1 7/8 & 2 1/4	24	6.75
372-A	1 1/16 & 1 1/4	20	3.5	385	1 13/16 & 2	24	6.75
373	1 1/8 & 1 5/16	20	3.5	389	2 & 2 3/8	25	9.00
376-A	1 1/4 & 1 7/16	21	4.0	389-B	2 3/16 & 2 3/8	25	9.00
376	1 5/16 & 1 1/2	21	4.0				

EXTRA LONG PATTERN

Straight Opening—Single Head

With Extra Long Round Handle

Drop Forged—Selected High Carbon Steel



Accurately milled. Carefully hardened.

Grit blasted.

Head not ground bright but plainly stamped with catalog number and nominal opening.

No.	Nominal Opening Milled Inches	For American Standard Heavy Nut (USS) Size Bolt Inches	Approximate Extreme Length Inches	Approx. Weight Lb.
292	7/8	1 1/2	19	3.0
293	1 1/16	5/8	22	4.0
294	1 1/4	3/4	22	4.0
296	1 7/16	7/8	24	5.0
297	1 5/8	1	24	5.0

ALLIGATOR TYPE

Single End

Drop Forged—Selected High Carbon Steel



Teeth carefully milled, of uniform design.

Wrenches are grit blasted and oiled.

No.	Approx. Extreme Length Inches	Holds Pipe Inches	Holds Round Iron Inches	Approx. Weight Lb.
1	7 1/2	1/8 to 1/2	5/16 to 3/4	.50
2	9	1/4 to 3/4	7/16 to 1	1.00
2 1/2	12	3/8 to 1	5/8 to 1 1/4	1.75
3	15	1/2 to 1 1/4	3/4 to 1 1/2	3.00
3 1/2	18	3/4 to 1 1/2	1 to 1 3/4	4.00
4	21	1 to 2	1 1/4 to 2 1/2	7.50
4 1/2	24	1 1/4 to 2 1/2	1 1/2 to 3	9.75
5	27	1 1/2 to 3	2 1/4 to 3 1/2	13.00

See chart, page 76, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



ARMSTRONG HI-TEN WRENCHES

FACE SPANNER PATTERN

Drop Forged—Selected High Carbon Steel—Gray Enameled



Smoothly burnished. Carefully hardened. Finished in gray baked-on enamel.

Pins are forged integral with wrench and are milled to exact sizes listed.

Wrenches with pins of smaller diameter or length can be furnished on special order.

No.	PINS			Span of Jaws in Clear Inches	Approx. Length from Center of Pins Inches	Approx. Wt. Lb.	No.	PINS			Span of Jaws in Clear Inches	Approx. Length from Center of Pins Inches	Approx. Wt. Lb.
	Distance C to C Inches	Diameter Milled Inches	Length Inches					Distance C to C Inches	Diameter Milled Inches	Length Inches			
418	1	$\frac{3}{16}$	$\frac{3}{16}$	$\frac{11}{16}$	$4\frac{1}{2}$	.13	432	$2\frac{3}{4}$	$\frac{9}{32}$	$\frac{9}{32}$	$2\frac{3}{32}$	8	.67
420	$1\frac{1}{4}$	$\frac{7}{32}$	$\frac{7}{32}$	$\frac{7}{8}$	5	.17	434	3	$\frac{5}{16}$	$\frac{5}{16}$	$2\frac{1}{2}$	$8\frac{1}{2}$	.75
422	$1\frac{1}{2}$	$\frac{7}{32}$	$\frac{7}{32}$	$1\frac{1}{8}$	$5\frac{1}{2}$	.20	436	$3\frac{1}{4}$	$\frac{5}{16}$	$\frac{5}{16}$	$2\frac{3}{4}$	$9\frac{1}{8}$	.83
424	$1\frac{3}{4}$	$\frac{7}{32}$	$\frac{7}{32}$	$1\frac{3}{8}$	6	.25	438	$3\frac{1}{2}$	$\frac{5}{16}$	$\frac{5}{16}$	3	$9\frac{3}{4}$	1.00
426	2	$\frac{1}{4}$	$\frac{1}{4}$	$1\frac{19}{32}$	$6\frac{1}{2}$	.33	440	$3\frac{3}{4}$	$\frac{3}{8}$	$\frac{3}{8}$	$3\frac{3}{16}$	$10\frac{3}{8}$	1.13
428	$2\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$1\frac{27}{32}$	7	.40	442	4	$\frac{3}{8}$	$\frac{3}{8}$	$3\frac{7}{16}$	11	1.50
430	$2\frac{1}{2}$	$\frac{9}{32}$	$\frac{9}{32}$	$2\frac{1}{32}$	$7\frac{1}{2}$	.50							

ADJUSTABLE FACE SPANNER PATTERN

Drop Forged—Selected High Carbon Steel—Gray Enameled

Smoothly burnished. Carefully hardened. Finished in gray baked-on enamel.

Pins are forged integral with wrench and are milled.

Wrenches with pins of smaller diameter or length can be furnished on special order.



No.	Extreme Capacity Inches	Approximate Extreme Length Inches	Diameter of Pins Inches	Approx. Weight Lb.
482	2	$6\frac{3}{8}$	$\frac{3}{16}$	.41
483	3	$8\frac{1}{4}$	$\frac{1}{4}$	.76
484	4	$10\frac{3}{8}$	$\frac{5}{16}$	1.10

PIN SPANNER PATTERN

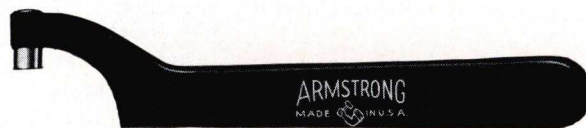
Drop Forged—Selected High Carbon Steel—Gray Enameled

Smoothly burnished. Carefully hardened.

Finished in gray baked-on enamel.

Pins forged integral with wrench and are milled to exact sizes listed.

Wrenches with pins of smaller diameter or length can be furnished on special order.



No.	For Circle Diameter Inches	Finished Diameter Pin Inches	Approximate Extreme Length Inches	Approx. Weight Lb.	No.	For Circle Diameter Inches	Finished Diameter Pin Inches	Approximate Extreme Length Inches	Approx. Weight Lb.
452	1	$\frac{3}{16}$	4	.08	460	3	$\frac{5}{16}$	8	.50
453	$1\frac{1}{4}$	$\frac{13}{64}$	$4\frac{1}{2}$	.10	461	$3\frac{1}{4}$	$\frac{21}{64}$	$8\frac{1}{2}$	.50
454	$1\frac{1}{2}$	$\frac{7}{32}$	5	.13	462	$3\frac{1}{2}$	$\frac{11}{32}$	9	.63
455	$1\frac{3}{4}$	$\frac{15}{64}$	$5\frac{1}{2}$	.17	463	$3\frac{3}{4}$	$\frac{23}{64}$	$9\frac{1}{2}$	.67
456	2	$\frac{1}{4}$	6	.20	464	4	$\frac{3}{8}$	10	.75
457	$2\frac{1}{4}$	$\frac{17}{64}$	$6\frac{1}{2}$	.25	466	5	$\frac{7}{16}$	12	1.00
458	$2\frac{1}{2}$	$\frac{9}{32}$	7	.33	468	6	$\frac{1}{2}$	14	1.38
459	$2\frac{3}{4}$	$\frac{19}{64}$	$7\frac{1}{2}$	.40	...	...	...	...	...

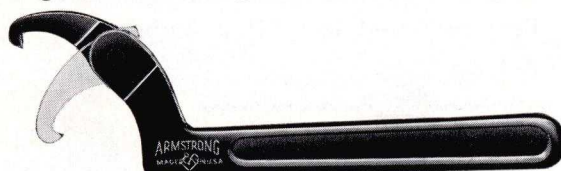
See chart, page 76, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



ARMSTRONG HI-TEN WRENCHES

ADJUSTABLE HOOK SPANNER PATTERN

Drop Forged—Selected High Carbon Steel—Gray Enameled

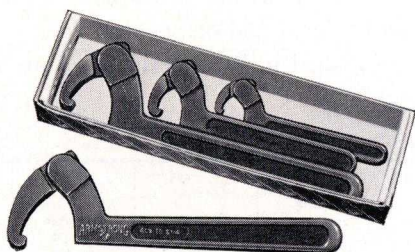


Smoothly burnished. Jaw is hardened.

Finished in gray baked-on enamel.

HI-TEN Hook Spanners will service many sizes of adjusting collars, rings and spindle bearings.

No.	Capacity for Circles, Diameter Inches	Approximate Extreme Length Inches	THICKNESS		Depth Hook Inches	Approximate Weight Lb.
			Handle Inches	Hook Inches		
471	$\frac{3}{4}$ to 2	$6\frac{3}{8}$	$\frac{1}{4}$	$\frac{11}{32}$	$\frac{1}{8}$	.25
472	$1\frac{1}{4}$ to 3	$8\frac{1}{8}$	$\frac{9}{32}$	$\frac{13}{32}$	$\frac{5}{32}$	.48
474	2 to $4\frac{3}{4}$	$11\frac{3}{8}$	$\frac{5}{16}$	$\frac{15}{32}$	$\frac{3}{16}$	.93
474-A	$4\frac{1}{2}$ to $6\frac{1}{4}$	$12\frac{1}{8}$	$\frac{5}{16}$	$\frac{15}{32}$	$\frac{1}{4}$	1.00
474-B	$6\frac{1}{8}$ to $8\frac{3}{4}$	$13\frac{3}{4}$	$\frac{5}{16}$	$\frac{15}{32}$	$\frac{5}{16}$	1.20



Hook Spanner Set No. 401C

Contains 1 each of Nos. 471, 472, 474 and 474-A.

Furnished complete in cardboard box.

Approximate weight, 2.75 pounds.

ADJUSTABLE PIN SPANNER WRENCHES

With Round Pins

Drop Forged—Selected High Carbon Steel—Gray Enameled



Smoothly burnished. Jaw is hardened.

Finished in gray baked-on enamel.

Especially suited for use on adjusting collars, rings, lock nuts.

Wrenches with pins of smaller diameter or length can be furnished on special order.

No.	Capacity for Circles, Diameter Inches	Approximate Extreme Length Inches	THICKNESS		PIN SIZE		Approximate Weight Lb.
			Handle Inches	Hook Inches	Diameter	Length	
0-471	$\frac{3}{4}$ to 2	$6\frac{3}{8}$	$\frac{1}{4}$	$\frac{11}{32}$	$\frac{1}{8}$	$\frac{1}{8}$	.27
0-471-A	$\frac{3}{4}$ to 2	$6\frac{3}{8}$	$\frac{1}{4}$	$\frac{11}{32}$	$\frac{3}{16}$	$\frac{5}{32}$	.27
0-472	$1\frac{1}{4}$ to 3	$8\frac{1}{8}$	$\frac{9}{32}$	$\frac{13}{32}$	$\frac{3}{16}$	$\frac{3}{16}$	.5
0-472-A	$1\frac{1}{4}$ to 3	$8\frac{1}{8}$	$\frac{9}{32}$	$\frac{13}{32}$	$\frac{1}{4}$	$\frac{7}{32}$	.5
0-474	2 to $4\frac{3}{4}$	$11\frac{3}{8}$	$\frac{5}{16}$	$\frac{15}{32}$	$\frac{1}{4}$	$\frac{1}{4}$	.99
0-474-A	$4\frac{1}{2}$ to $6\frac{1}{4}$	$12\frac{1}{8}$	$\frac{5}{16}$	$\frac{15}{32}$	$\frac{3}{8}$	$\frac{1}{4}$	1.10

See chart, page 76, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



ARMSTRONG HI-TEN WRENCHES

SOCKET PATTERN

Straight Shank—With Removable Pin Handle

Drop Forged—Selected High Carbon Steel



Hexagon Opening



Square Opening

Accurately broached. Smoothly burnished. Carefully hardened.
 Finished in gray baked-on enamel. Wrench face is bright.
 Removable pin handle allows use of another wrench on hexagon end of shank.
 Wrenches longer or shorter than standard lengths can be furnished on special order.
 Wrenches with Hexagon or Square openings can be furnished in Whitworth sizes on special order.

Hexagon Opening

No.	Nominal Opening Across Flats Inches	Diameter of Head Inches	Approximate Extreme Length Inches	Approx. Weight Lb.	No.	Nominal Opening Across Flats Inches	Diameter of Head Inches	Approximate Extreme Length Inches	Approx. Weight Lb.
961-A	$\frac{5}{16}$	$\frac{1}{2}$	$4\frac{1}{4}$	.13	971-A	$\frac{11}{16}$	$1\frac{5}{8}$	$8\frac{1}{4}$	2.00
962-D	$\frac{3}{8}$	$\frac{5}{8}$	$4\frac{1}{2}$	.20	971-D	$\frac{11}{8}$	$1\frac{5}{8}$	$8\frac{1}{4}$	2.00
963-A	$\frac{13}{32}$	$\frac{11}{16}$	$4\frac{7}{8}$	.25	973-A	$\frac{11}{4}$	$1\frac{7}{8}$	$9\frac{1}{8}$	3.00
963-D	$\frac{7}{16}$	$\frac{11}{16}$	$4\frac{7}{8}$	.25	973-B	$\frac{15}{16}$	$1\frac{7}{8}$	$9\frac{1}{8}$	3.00
964-A	$\frac{1}{2}$	$\frac{3}{4}$	$5\frac{1}{4}$	.33	975-A	$\frac{17}{16}$	$2\frac{1}{8}$	10	4.00
965-D	$\frac{9}{16}$	$\frac{7}{8}$	$5\frac{3}{4}$	.50	975-D	$1\frac{1}{2}$	$2\frac{1}{8}$	10	4.00
965-A	$\frac{19}{32}$	$\frac{7}{8}$	$5\frac{3}{4}$	.50	976-A	$1\frac{5}{8}$	$2\frac{3}{8}$	$10\frac{3}{8}$	4.50
966-D	$\frac{5}{8}$	1	$6\frac{1}{8}$	.75	976-B	$1\frac{11}{16}$	$2\frac{3}{8}$	$10\frac{3}{8}$	4.50
967-A	$\frac{11}{16}$	$1\frac{1}{8}$	$6\frac{1}{2}$	.88	977-A	$1\frac{13}{16}$	$2\frac{5}{8}$	$10\frac{7}{8}$	6.50
967-D	$\frac{3}{4}$	$1\frac{1}{8}$	$6\frac{1}{2}$	.88	977-B	$1\frac{7}{8}$	$2\frac{5}{8}$	$10\frac{7}{8}$	6.50
968-A	$\frac{23}{32}$	$1\frac{1}{4}$	7	1.00	978-A	2	$2\frac{7}{8}$	$11\frac{3}{8}$	6.75
968-D	$\frac{13}{16}$	$1\frac{1}{4}$	7	1.00	979-A	$2\frac{3}{16}$	3	$11\frac{7}{8}$	8.50
969-A	$\frac{7}{8}$	$1\frac{3}{8}$	$7\frac{3}{8}$	1.25	979-B	$2\frac{1}{4}$	3	$11\frac{7}{8}$	8.50
970-S	$\frac{15}{16}$	$1\frac{1}{2}$	$7\frac{7}{8}$	1.50	980-A	$2\frac{3}{8}$	$3\frac{5}{16}$	$12\frac{1}{2}$	11.00
970-D	1	$1\frac{1}{2}$	$7\frac{7}{8}$	1.50					

Square Opening

No.	Nominal Opening Across Flats Inches	Diameter of Head Inches	Approximate Extreme Length Inches	Approx. Weight Lb.	No.	Nominal Opening Across Flats Inches	Diameter of Head Inches	Approximate Extreme Length Inches	Approx. Weight Lb.
961-H	$\frac{3}{16}$	$\frac{1}{2}$	$4\frac{1}{4}$	.13	968-P	$\frac{11}{16}$	$1\frac{1}{4}$	7	1.00
961-J	$\frac{1}{4}$	$\frac{1}{2}$	$4\frac{1}{4}$	.13	969-H	$\frac{3}{4}$	$1\frac{3}{8}$	$7\frac{3}{8}$	1.25
962-H	$\frac{5}{16}$	$\frac{5}{8}$	$4\frac{1}{2}$	.20	971-H	$\frac{7}{8}$	$1\frac{5}{8}$	$8\frac{1}{4}$	2.00
963-H	$\frac{3}{8}$	$\frac{11}{16}$	$4\frac{7}{8}$	.25	973-H	1	$1\frac{7}{8}$	$9\frac{1}{8}$	3.00
965-H	$\frac{7}{16}$	$\frac{7}{8}$	$5\frac{3}{4}$	.50	974-H	$1\frac{1}{8}$	2	$9\frac{1}{2}$	3.50
966-H	$\frac{1}{2}$	1	$6\frac{1}{8}$	.75	976-H	$1\frac{1}{4}$	$2\frac{3}{8}$	$10\frac{3}{8}$	4.50
967-H	$\frac{9}{16}$	$1\frac{1}{8}$	$6\frac{1}{2}$	.88	977-X	$1\frac{7}{16}$	$2\frac{5}{8}$	$10\frac{7}{8}$	6.50
968-H	$\frac{5}{8}$	$1\frac{1}{4}$	7	1.00	977-P	$1\frac{1}{2}$	$2\frac{5}{8}$	$10\frac{7}{8}$	6.50

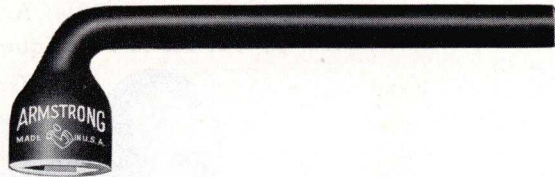
See chart, page 76, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



ARMSTRONG HI-TEN WRENCHES

OFFSET SOCKET PATTERN

Drop Forged—Selected High Carbon Steel



Hexagon
Opening



Square
Opening

Accurately broached. Smoothly burnished. Carefully hardened.

Finished in gray baked-on enamel. Wrench face is bright.

Wrenches with extra length at handle or offset can be furnished on special order.

Wrenches with Hexagon or Square openings can be furnished in Whitworth sizes on special order.

Hexagon Opening

No.	Nominal Opening Across Flats Inches	Diam. of Head Inches	Approx. Extreme Length Inches	Handle Offset in Clear from Face of Wrench Inches	Approx. Wt. Lb.	No.	Nominal Opening Across Flats Inches	Diam. of Head Inches	Approx. Extreme Length Inches	Handle Offset in Clear from Face of Wrench Inches	Approx. Wt. Lb.
261-A	$\frac{5}{16}$	$\frac{1}{2}$	$3\frac{3}{4}$	$\frac{13}{16}$	.13	271-A	$\frac{11}{16}$	$1\frac{5}{8}$	10	$2\frac{3}{8}$	1.63
262-D	$\frac{3}{8}$	$\frac{5}{8}$	$4\frac{1}{2}$	1	.20	271-D	$\frac{11}{8}$	$1\frac{5}{8}$	10	$2\frac{3}{8}$	1.63
263-A	$\frac{13}{32}$	$\frac{5}{8}$	$4\frac{1}{2}$	$\frac{11}{16}$	.20	273-A	$\frac{11}{4}$	$1\frac{7}{8}$	$11\frac{5}{8}$	$2\frac{3}{4}$	2.33
263-D	$\frac{7}{16}$	$\frac{11}{16}$	$4\frac{1}{2}$	$\frac{11}{16}$	.20	273-B	$\frac{15}{16}$	$1\frac{7}{8}$	$11\frac{5}{8}$	$2\frac{3}{4}$	2.33
264-A	$\frac{1}{2}$	$\frac{3}{4}$	$5\frac{1}{2}$	$\frac{11}{4}$	.25	275-A	$\frac{17}{16}$	$2\frac{1}{8}$	$13\frac{1}{4}$	$3\frac{1}{8}$	3.50
265-D	$\frac{9}{16}$	$\frac{7}{8}$	$6\frac{1}{2}$	$\frac{17}{16}$	.38	275-D	$1\frac{1}{2}$	$2\frac{1}{8}$	$13\frac{1}{4}$	$3\frac{1}{8}$	3.50
265-A	$\frac{19}{32}$	$\frac{7}{8}$	$6\frac{1}{2}$	$\frac{17}{16}$	.38	276-A	$1\frac{5}{8}$	$2\frac{3}{8}$	$14\frac{7}{8}$	$3\frac{1}{2}$	4.50
266-D	$\frac{5}{8}$	1	$6\frac{1}{2}$	$\frac{19}{16}$	.38	276-B	$\frac{11}{16}$	$2\frac{3}{8}$	$14\frac{7}{8}$	$3\frac{1}{2}$	4.50
267-A	$\frac{11}{16}$	$1\frac{1}{8}$	$7\frac{1}{4}$	$1\frac{5}{8}$	.63	277-A	$\frac{11}{16}$	$2\frac{5}{8}$	$16\frac{1}{2}$	$3\frac{7}{8}$	6.00
267-D	$\frac{3}{4}$	$1\frac{1}{8}$	$7\frac{1}{4}$	$1\frac{5}{8}$	.63	277-B	$\frac{17}{8}$	$2\frac{5}{8}$	$16\frac{1}{2}$	$3\frac{7}{8}$	6.00
268-A	$\frac{25}{32}$	$1\frac{1}{4}$	8	$1\frac{13}{16}$	.88	278-A	2	$2\frac{7}{8}$	$18\frac{1}{4}$	$4\frac{3}{8}$	8.13
268-D	$\frac{13}{16}$	$1\frac{1}{4}$	8	$1\frac{13}{16}$	.88	279-A	$\frac{23}{16}$	3	20	$4\frac{7}{8}$	10.00
269-A	$\frac{7}{8}$	$1\frac{3}{8}$	$8\frac{3}{8}$	2	.88	279-B	$\frac{21}{4}$	3	20	$4\frac{7}{8}$	10.00
270-S	$\frac{15}{16}$	$1\frac{1}{2}$	$9\frac{1}{8}$	$\frac{23}{16}$	1.25	280-A	$\frac{23}{8}$	$3\frac{3}{16}$	$21\frac{3}{4}$	$5\frac{3}{8}$	12.33
270-D	1	$1\frac{1}{2}$	$9\frac{1}{8}$	$\frac{23}{16}$	1.25						

Square Opening

No.	Nominal Opening Across Flats Inches	Diam. of Head Inches	Approx. Extreme Length Inches	Handle Offset in Clear from Face of Wrench Inches	Approx. Wt. Lb.	No.	Nominal Opening Across Flats Inches	Diam. of Head Inches	Approx. Extreme Length Inches	Handle Offset in Clear from Face of Wrench Inches	Approx. Wt. Lb.
261-J	$\frac{1}{4}$	$\frac{1}{2}$	$3\frac{3}{4}$	$\frac{13}{16}$	.13	268-P	$\frac{11}{16}$	$1\frac{1}{4}$	8	$1\frac{13}{16}$	1.00
262-H	$\frac{5}{16}$	$\frac{5}{8}$	$4\frac{1}{2}$	1	.25	269-H	$\frac{3}{4}$	$1\frac{3}{8}$	$8\frac{3}{8}$	2	1.00
263-H	$\frac{3}{8}$	$\frac{11}{16}$	$5\frac{1}{2}$	$\frac{11}{16}$	.33	271-H	$\frac{7}{8}$	$1\frac{5}{8}$	10	$2\frac{3}{8}$	1.75
265-H	$\frac{7}{16}$	$\frac{7}{8}$	$6\frac{1}{2}$	$\frac{17}{16}$	.44	273-H	1	$1\frac{7}{8}$	$11\frac{5}{8}$	$2\frac{3}{4}$	2.50
266-H	$\frac{1}{2}$	1	$6\frac{1}{2}$	$\frac{19}{16}$	.44	274-H	$\frac{11}{8}$	2	$12\frac{3}{8}$	$2\frac{7}{8}$	2.50
267-H	$\frac{9}{16}$	$1\frac{1}{8}$	$7\frac{1}{4}$	$1\frac{5}{8}$	.63	276-H	$\frac{11}{4}$	$2\frac{3}{8}$	$14\frac{7}{8}$	$3\frac{1}{2}$	3.75
268-H	$\frac{5}{8}$	$1\frac{1}{4}$	8	$1\frac{13}{16}$	1.00						

See chart, page 76, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



ARMSTRONG HI-TEN WRENCHES

SET SCREW PATTERN

Drop Forged—Selected High Carbon Steel

22½° Angle—Single Head

For Set Screws, Square Head Cap Screws and Nuts
Gray Enameled



22½° Angle—Double Head

For Set Screws, Square Head Cap Screws and Nuts
Gray Enameled



Accurately milled. Smoothly burnished. Carefully hardened. Finished in gray baked-on enamel. Wrench heads ground bright and plainly stamped with catalog number and nominal openings. Wrenches with special openings available on special order.

No.	Nominal Opening Inches	Approximate Extreme Length, In.	Thickness Head Inches	Approx. Weight Lb.
500	$\frac{3}{16}$	3	$\frac{3}{16}$	.04
501	$\frac{1}{4}$	$3\frac{3}{8}$	$\frac{1}{4}$	.06
502	$\frac{5}{16}$	$4\frac{1}{2}$	$\frac{9}{32}$	.10
503	$\frac{3}{8}$	$5\frac{3}{8}$	$\frac{11}{32}$	.20
504	$\frac{7}{16}$	$6\frac{1}{4}$	$\frac{3}{8}$	.33
505	$\frac{1}{2}$	7	$\frac{7}{16}$	.38
506	$\frac{9}{16}$	$7\frac{1}{2}$	$\frac{1}{2}$	.50
507	$\frac{5}{8}$	8	$\frac{9}{16}$	.75
508	$\frac{3}{4}$	$9\frac{1}{4}$	$\frac{5}{8}$	1.00
509	$\frac{7}{8}$	$10\frac{1}{2}$	$\frac{11}{16}$	1.50
510	1	$11\frac{1}{2}$	$\frac{3}{4}$	2.00
511	$1\frac{1}{8}$	12	$\frac{13}{16}$	2.50

No.	Nominal Openings Inches	Approximate Extreme Length, In.	Thickness Head Inches	Approx. Weight Lb.
523	$\frac{3}{16}$ & $\frac{1}{4}$	$3\frac{3}{8}$	$\frac{3}{16}$	.10
524	$\frac{3}{16}$ & $\frac{5}{16}$	4	$\frac{1}{4}$	.13
525	$\frac{1}{4}$ & $\frac{5}{16}$	4	$\frac{1}{4}$	.13
526	$\frac{1}{4}$ & $\frac{3}{8}$	5	$\frac{5}{16}$	.17
527	$\frac{5}{16}$ & $\frac{3}{8}$	5	$\frac{5}{16}$	.17
529	$\frac{3}{8}$ & $\frac{7}{16}$	$5\frac{7}{8}$	$\frac{11}{32}$	.33
530	$\frac{3}{8}$ & $\frac{1}{2}$	$6\frac{5}{8}$	$\frac{3}{8}$	.50
531	$\frac{7}{16}$ & $\frac{1}{2}$	$6\frac{5}{8}$	$\frac{3}{8}$	.50
533	$\frac{1}{2}$ & $\frac{9}{16}$	$7\frac{1}{2}$	$\frac{1}{2}$	.75
534	$\frac{1}{2}$ & $\frac{5}{8}$	$8\frac{3}{8}$	$\frac{17}{32}$	1.00
535	$\frac{9}{16}$ & $\frac{5}{8}$	$8\frac{3}{8}$	$\frac{17}{32}$	1.00
537	$\frac{5}{8}$ & $\frac{3}{4}$	10	$\frac{5}{8}$	1.50
539	$\frac{3}{4}$ & $\frac{7}{8}$	$11\frac{3}{8}$	$\frac{11}{16}$	2.00
541	$\frac{7}{8}$ & 1	$12\frac{5}{8}$	$\frac{23}{32}$	2.75
543	1 & $1\frac{1}{8}$	14	$\frac{13}{16}$	3.60

SQUARE BOX PATTERN

(Double Square Broached)

22½° Angle—Single Head

For Set Screws, Square Cap Screws and Nuts

Drop Forged—Selected High Carbon Steel

Gray Enameled



Accurately broached. Smoothly burnished. Carefully hardened.

Finished in gray baked-on enamel.

Heads ground bright; plainly stamped with catalog number and nominal opening.

Wrenches with special openings are available on special order.

No.	Nominal Opening Inches	Approx. Extreme Length Inches	HEAD		Approx. Weight Lb.
			Thickness Inches	Outside Diameter Inches	
581	$\frac{1}{4}$	$3\frac{3}{8}$	$\frac{9}{32}$	$2\frac{1}{32}$	.06
582	$\frac{5}{16}$	$3\frac{3}{4}$	$\frac{5}{16}$	$1\frac{1}{16}$	.13
583	$\frac{3}{8}$	$4\frac{1}{4}$	$\frac{11}{32}$	$\frac{7}{8}$	.17
584	$\frac{7}{16}$	$4\frac{7}{8}$	$\frac{3}{8}$	1	.25
585	$\frac{1}{2}$	$5\frac{1}{2}$	$\frac{7}{16}$	$1\frac{1}{8}$	.33
586	$\frac{9}{16}$	$6\frac{1}{4}$	$\frac{1}{2}$	$1\frac{3}{16}$	.50
587	$\frac{5}{8}$	7	$\frac{9}{16}$	$1\frac{5}{16}$	.63
588	$\frac{3}{4}$	8	$\frac{5}{8}$	$1\frac{7}{16}$	.75
589	$\frac{7}{8}$	9	$2\frac{1}{32}$	$1\frac{3}{4}$	1.00
590	1	10	$\frac{3}{4}$	2	1.50
591	$1\frac{1}{8}$	11	$\frac{13}{16}$	$2\frac{1}{4}$	1.88

See chart, page 76, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



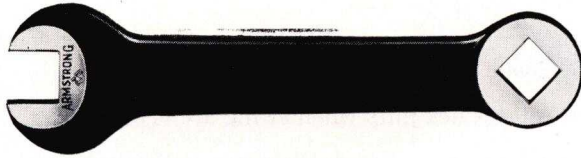
ARMSTRONG HI-TEN WRENCHES

DOUBLE HEAD TOOL POST PATTERN

For Set Screws

Drop Forged—Selected High Carbon Steel

Gray Enameled



Accurately milled and broached. Smoothly burnished. Carefully hardened. Finished in gray baked-on enamel. Heads ground bright and plainly stamped with catalog number and nominal openings.

All openings are slightly larger than nominal sizes listed to allow for proper clearance. Wrenches with special openings on special order.

No.	Open End for Set Screw; Size Inches	*Closed End for Set Screw; Size Inches	Approx. Extreme Length Inches	Thick-ness Heads Inches	Approx. Weight Lb.	No.	Open End for Set Screw; Size Inches	*Closed End for Set Screw; Size Inches	Approx. Extreme Length Inches	Thick-ness Heads Inches	Approx. Weight Lb.
554	$\frac{7}{16}$	$\frac{7}{16}$	$5\frac{1}{2}$	$\frac{15}{32}$	.38	556	$\frac{5}{8}$	$\frac{5}{8}$	$6\frac{3}{4}$	$\frac{9}{16}$	.75
555	$\frac{1}{2}$	$\frac{1}{2}$	6	$\frac{17}{32}$	.5	556-B	$\frac{11}{16}$	$\frac{5}{8}$	$6\frac{3}{4}$	$\frac{9}{16}$	.75
555-B	$\frac{9}{16}$	$\frac{1}{2}$	6	$\frac{17}{32}$	.5	556-C	$\frac{11}{16}$	$\frac{11}{16}$	$6\frac{3}{4}$	$\frac{9}{16}$	.75
555-C	$\frac{9}{16}$	$\frac{9}{16}$	6	$\frac{17}{32}$	.5	557	$\frac{3}{4}$	$\frac{3}{4}$	$7\frac{1}{2}$	$\frac{11}{16}$	1.

*After present stocks are depleted these wrenches will be furnished with double square opening in closed end.

DOUBLE HEAD TOOL POST PATTERN

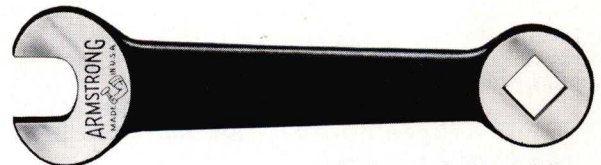
For Nuts and Set Screws

Drop Forged—Selected High Carbon Steel

Gray Enameled

Accurately milled and broached. Smoothly burnished. Carefully hardened. Finished in gray baked-on enamel. Heads ground bright and plainly stamped with catalog number and nominal openings.

All openings are slightly larger than nominal sizes listed to allow for proper clearance. Wrenches with special openings on special order.



No.	Nominal Opening Inches	*Closed End for Set Screw; Size Inches	Approx. Extreme Length Inches	Thick-ness Heads Inches	Approx. Weight Lb.	No.	Nominal Opening Inches	*Closed End for Set Screw; Size Inches	Approx. Extreme Length Inches	Thick-ness Heads Inches	Approx. Weight Lb.
562-B	$\frac{5}{8}$	$\frac{9}{16}$	$6\frac{1}{2}$	$\frac{7}{16}$	.5	566	$1\frac{1}{4}$	$\frac{3}{4}$	9	$\frac{11}{16}$	1.5
562	$\frac{11}{16}$	$\frac{9}{16}$	$6\frac{1}{2}$	$\frac{7}{16}$	.5	566-B	$1\frac{1}{4}$	$\frac{7}{8}$	9	$\frac{11}{16}$	1.5
563-E	$\frac{13}{16}$	$\frac{7}{16}$	7	$\frac{1}{2}$	.75	567-D	$1\frac{1}{8}$	1	10	$\frac{3}{4}$	2.25
563-F	$\frac{13}{16}$	$\frac{1}{2}$	7	$\frac{1}{2}$	.75	567	$1\frac{1}{4}$	1	10	$\frac{3}{4}$	2.25
563-G	$\frac{13}{16}$	$\frac{9}{16}$	7	$\frac{1}{2}$	.75	567-E	$1\frac{3}{16}$	$\frac{7}{8}$	10	$\frac{3}{4}$	2.25
563-H	$\frac{13}{16}$	$\frac{5}{8}$	7	$\frac{1}{2}$	.75	567-F	$1\frac{3}{16}$	1	10	$\frac{3}{4}$	2.25
563	$\frac{7}{8}$	$\frac{7}{16}$	7	$\frac{1}{2}$	.75	567-B	$1\frac{7}{16}$	$\frac{7}{8}$	10	$\frac{3}{4}$	2.25
563-B	$\frac{7}{8}$	$\frac{1}{2}$	7	$\frac{1}{2}$	.75	567-C	$1\frac{7}{16}$	1	10	$\frac{3}{4}$	2.25
563-C	$\frac{7}{8}$	$\frac{9}{16}$	7	$\frac{1}{2}$	.75	568-E	$1\frac{1}{2}$	$\frac{7}{8}$	11	$\frac{13}{16}$	3.25
563-D	$\frac{7}{8}$	$\frac{5}{8}$	7	$\frac{1}{2}$	.75	568-F	$1\frac{1}{2}$	1	11	$\frac{13}{16}$	3.25
564-C	1	$\frac{5}{8}$	7	$\frac{5}{8}$	1.	568	$1\frac{5}{8}$	$\frac{7}{8}$	11	$\frac{13}{16}$	3.25
564	$1\frac{1}{16}$	$\frac{5}{8}$	8	$\frac{5}{8}$	1.	568-B	$1\frac{5}{8}$	1	11	$\frac{13}{16}$	3.25
565-C	1	$\frac{3}{4}$	8	$\frac{5}{8}$	1.	568-G	$1\frac{11}{16}$	1	11	$\frac{13}{16}$	3.25
565	$1\frac{1}{16}$	$\frac{3}{4}$	8	$\frac{5}{8}$	1.	568-H	$1\frac{7}{8}$	1	11	$\frac{13}{16}$	3.25
566-C	$1\frac{1}{8}$	$\frac{3}{4}$	9	$\frac{11}{16}$	1.5	568-C	$1\frac{13}{16}$	1	11	$\frac{13}{16}$	3.25
566-D	$1\frac{1}{8}$	$\frac{7}{8}$	9	$\frac{11}{16}$	1.5	568-D	2	1	11	$\frac{13}{16}$	3.25

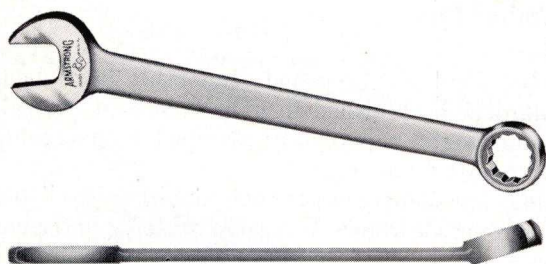
*After present stocks are depleted these wrenches will be furnished with double square opening in closed end.

See chart, page 76, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



ARMSTRONG ARMALLOY WRENCHES COMBINATION OPEN END AND BOX PATTERN

Drop Forged—Selected Alloy Steel



Accurately milled and broached. Smoothly burnished. Carefully heat treated. Finished in chrome plate with heads buffed bright. Wrenches stamped with catalog number and nominal opening.

Both ends have same size opening; opening in open end is offset 15°, head of box socket end is offset 15°.

Each end rotates hex nuts when swing arc is only 30°.

In stock with openings listed. Wrenches with special openings available on special order.

No.	Nominal Openings Inches	Approx. Extreme Lgth., In.	Approx. Weight Lb.	No.	Nominal Openings Inches	Approx. Extreme Lgth., In.	Approx. Weight Lb.	No.	Nominal Openings Inches	Approx. Extreme Lgth., In.	Approx. Weight Lb.
*1157	$\frac{1}{32}$ & $\frac{1}{32}$	3	.03	1163-A	$\frac{19}{32}$ & $\frac{19}{32}$	$5\frac{7}{8}$	.21	1171	$1\frac{1}{16}$ & $1\frac{1}{16}$	15	1.75
*1158	$\frac{1}{4}$ & $\frac{1}{4}$	3	.03	1164	$\frac{5}{8}$ & $\frac{5}{8}$	$6\frac{1}{4}$	.28	1172	$1\frac{1}{8}$ & $1\frac{1}{8}$	15	1.75
*1158-A	$\frac{9}{32}$ & $\frac{9}{32}$	$3\frac{1}{2}$	.05	1165	$\frac{11}{16}$ & $\frac{11}{16}$	7	.28	1173	$1\frac{1}{4}$ & $1\frac{1}{4}$	18	2.56
*1159	$\frac{5}{16}$ & $\frac{5}{16}$	$3\frac{1}{2}$	.05	1166	$\frac{3}{4}$ & $\frac{3}{4}$	8	.50	1174	$1\frac{3}{16}$ & $1\frac{3}{16}$	18	2.56
1159-A	$\frac{11}{32}$ & $\frac{11}{32}$	$4\frac{3}{16}$	.08	1166-A	$\frac{25}{32}$ & $\frac{25}{32}$	8	.50	1175	$1\frac{3}{8}$ & $1\frac{3}{8}$	20	3.25
1160	$\frac{3}{8}$ & $\frac{3}{8}$	$4\frac{3}{16}$	.08	1167-A	$\frac{13}{16}$ & $\frac{13}{16}$	$10\frac{1}{2}$	.75	1176	$1\frac{7}{16}$ & $1\frac{7}{16}$	21	3.88
1161	$\frac{7}{16}$ & $\frac{7}{16}$	5	.09	1167	$\frac{7}{8}$ & $\frac{7}{8}$	$10\frac{1}{2}$	.75	1178	$1\frac{1}{2}$ & $1\frac{1}{2}$	21	3.88
1162	$\frac{1}{2}$ & $\frac{1}{2}$	$5\frac{1}{4}$	.13	1168	$\frac{15}{16}$ & $\frac{15}{16}$	13	1.13	.....	.....	..	....
1163	$\frac{9}{16}$ & $\frac{9}{16}$	$5\frac{7}{8}$	.21	1170	1 & 1	13	1.13	.....	.....	..	....

*These sizes have single hex, 6-point opening in box end.

Note: For Miniature Combination Wrench Set, see page 53.

COMBINATION WRENCH SETS

Box and Open End Pattern • Drop Forged—Selected Alloy Steel

Set No. 1106R

Six wrenches with openings $\frac{3}{8}$ " to $\frac{3}{4}$ ".

Set No. 1106R in Roll.

Set No. 1106C in Cardboard Box.

Approx. weight, 1 lb.



Contents

No.	Nominal Openings, In.	Lgth. In.
1160	$\frac{3}{8}$ & $\frac{3}{8}$	$4\frac{3}{16}$
1161	$\frac{7}{16}$ & $\frac{7}{16}$	5
1162	$\frac{1}{2}$ & $\frac{1}{2}$	$5\frac{1}{4}$
1163	$\frac{9}{16}$ & $\frac{9}{16}$	$5\frac{7}{8}$
1164	$\frac{5}{8}$ & $\frac{5}{8}$	$6\frac{1}{4}$
1166	$\frac{3}{4}$ & $\frac{3}{4}$	8

Set No. 1104R

Four wrenches with openings $\frac{1}{16}$ " to $\frac{5}{8}$ ".

Set No. 1104R in Roll.

Set No. 1104C in Cardboard Box.

Approx. weight, .75 lb.



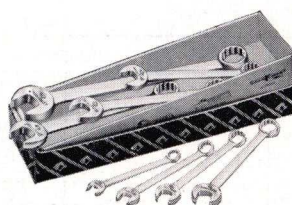
Contents

No.	Nominal Openings, In.	Lgth. In.
1161	$\frac{7}{16}$ & $\frac{7}{16}$	5
1162	$\frac{1}{2}$ & $\frac{1}{2}$	$5\frac{1}{4}$
1163	$\frac{9}{16}$ & $\frac{9}{16}$	$5\frac{7}{8}$
1164	$\frac{5}{8}$ & $\frac{5}{8}$	$6\frac{1}{4}$

Set No. 1108C

Eight wrenches with openings $\frac{3}{8}$ " to $\frac{7}{8}$ ".

In cardboard box. Approx. weight 2.17 lb.



Contents

No.	Nominal Openings, In.	Lgth. In.
1160	$\frac{3}{8}$ & $\frac{3}{8}$	$4\frac{3}{16}$
1161	$\frac{7}{16}$ & $\frac{7}{16}$	5
1162	$\frac{1}{2}$ & $\frac{1}{2}$	$5\frac{1}{4}$
1163	$\frac{9}{16}$ & $\frac{9}{16}$	$5\frac{7}{8}$
1164	$\frac{5}{8}$ & $\frac{5}{8}$	$6\frac{1}{4}$
1165	$\frac{11}{16}$ & $\frac{11}{16}$	7
1166	$\frac{3}{4}$ & $\frac{3}{4}$	8
1167	$\frac{7}{8}$ & $\frac{7}{8}$	$10\frac{1}{2}$

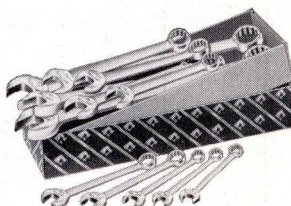
Set No. 1112C

Twelve wrenches with openings $\frac{3}{8}$ " to 1".

Set No. 1112R, in Roll.

Set No. 1112C, in Cardboard Box.

Approx. weight, 5.5 lb.



Contents

No.	Nominal Openings, In.	Lgth. In.	No.	Nominal Openings, In.	Lgth. In.
1160	$\frac{3}{8}$ & $\frac{3}{8}$	$4\frac{3}{16}$	1165	$\frac{11}{16}$ & $\frac{11}{16}$	7
1161	$\frac{7}{16}$ & $\frac{7}{16}$	5	1166	$\frac{3}{4}$ & $\frac{3}{4}$	8
1162	$\frac{1}{2}$ & $\frac{1}{2}$	$5\frac{1}{4}$	1166-A	$\frac{25}{32}$ & $\frac{25}{32}$	8
1163	$\frac{9}{16}$ & $\frac{9}{16}$	$5\frac{7}{8}$	1167	$\frac{7}{8}$ & $\frac{7}{8}$	$10\frac{1}{2}$
1163-A	$\frac{19}{32}$ & $\frac{19}{32}$	$5\frac{7}{8}$	1168	$\frac{15}{16}$ & $\frac{15}{16}$	13
1164	$\frac{5}{8}$ & $\frac{5}{8}$	$6\frac{1}{4}$	1170	1 & 1	13

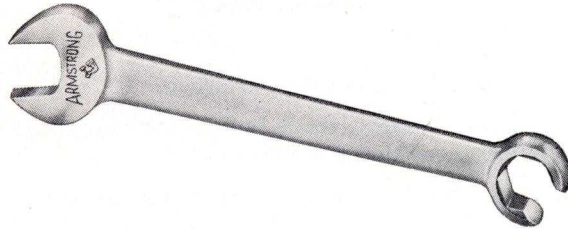


ARMSTRONG ARMALLOY WRENCHES

COMBINATION OPEN END AND FLARE NUT PATTERN

Drop Forged—Selected Alloy Steel

Chrome Plated



Open End at one end with Open Box Single Hexagon (6-point) opening at the other.

Accurately milled and broached. Smoothly burnished. Carefully heat treated.

Finished in chrome plate with heads buffed bright.

Wrenches plainly stamped with catalog number and nominal opening.

Both ends have same size opening.

Opening in open end is offset 15°. Head of open box end is offset 15° with the slot at 22½° to the axis of handle.

Each end rotates hex nuts when swing is only 30°, especially useful over tubing and pipe in close quarters.

In stock with openings listed. Wrenches with special openings available on special order.

No.	Nominal Opening Inches	Width Open Head Inches	Outside Diameter Box Head Inches	Approx. Extreme Length Inches	Approx. Weight Lb.	No.	Nominal Opening Inches	Width Open Head Inches	Outside Diameter Box Head Inches	Approx. Extreme Length Inches	Approx. Weight Lb.
1312	3/8 & 3/8	29/32	21/32	5	.09	1324	3/4 & 3/4	1 13/16	1 1/4	10 1/2	.75
1314	7/16 & 7/16	1 1/32	23/32	5 1/4	.13	1328	7/8 & 7/8	2	1 1/2	13	1.13
1316	1/2 & 1/2	1 5/32	27/32	5 7/8	.21	1332	1 & 1	2 7/16	1 19/32	15	1.75
1318	9/16 & 9/16	1 19/64	29/32	6 1/4	.28	1334	1 1/16 & 1 1/16	2 5/8	1 13/16	18	2.56
1320	5/8 & 5/8	1 27/64	1	7	.35	1336	1 1/8 & 1 1/8	2 5/8	1 13/16	18	2.56
1322	11/16 & 11/16	1 35/64	1 1/32	8	.50	.....	.....	.....	.....	.....	.....

FLARE NUT PATTERN

Drop Forged—Selected Alloy Steel

Chrome Plated



Accurately broached. Carefully heat treated. Finished in chrome plate. Wrench heads buffed bright.

Wrenches plainly stamped with catalog number and nominal opening.

Especially designed for use over tubing and pipe in close quarters.

Will not damage soft brass flare nuts.

Particularly useful for refrigeration, air conditioning, aircraft service work.

No.	Nominal Opening Inches	HEAD		Approx. Overall Length Inches	Approx. Weight Lb.	No.	Nominal Opening Inches	HEAD		Approx. Overall Length Inches	Approx. Weight Lb.
		Diameter Inches	Depth Inches					Diameter Inches	Depth Inches		
4112	3/8	25/32	5/16	6 3/8	.08	4126	13/16	1 29/64	5/8	7 7/16	.67
4114	7/16	55/64	11/32	6 7/16	.13	4128	7/8	1 7/16	5/8	7 3/4	.67
4116	1/2	15/16	7/16	6 3/4	.13	4130	15/16	1 1/2	5/8	7 3/4	1.00
4118	9/16	1 3/64	7/16	6 3/4	.25	4132	1	1 19/32	11/16	7 13/16	1.00
4120	5/8	1 7/64	15/32	7 1/16	.33	4134	1 1/16	1 43/64	3/4	7 7/8	1.25
4122	11/16	1 13/64	1/2	7 1/8	.33	4136	1 1/8	1 3/4	25/32	7 7/8	1.25
4124	3/4	1 19/32	9/16	7 3/8	.50	4138	1 1/16	1 27/32	13/16	7 29/32	1.25



ARMSTRONG ARMALLOY WRENCHES

BOX SOCKET PATTERN

15° Angle Offset
Drop Forged—Selected Alloy Steel
Chrome Plated

Accurately broached. Smoothly burnished. Carefully heat treated.

Finished in chrome plate. Heads buffed bright and plainly stamped with catalog number and nominal opening.

Thin head walls permit use where clearance is limited.

Double hexagon (12-point) openings permit nut to be rotated where swing is limited to a 30° arc.

All openings are slightly larger than nominal sizes to allow for proper clearance.

Wrenches with Whitworth openings available on special order.

15° Angle Offset—Short Pattern



No.	Nominal Openings Inches	Approximate Extreme Length Inches	Approximate Weight Lb.	No.	Nominal Openings Inches	Approximate Extreme Length Inches	Approximate Weight Lb.
6723	$\frac{3}{8}$ & $\frac{7}{16}$	4½	.08	6725-B	$\frac{1}{2}$ & $\frac{9}{16}$	5½	.14
6725	$\frac{7}{16}$ & $\frac{1}{2}$	5½	.11	6025	$\frac{1}{2}$ & $\frac{19}{32}$	5½	.14
6725-A	$\frac{7}{16}$ & $\frac{9}{16}$	5½	.14	6727	$\frac{9}{16}$ & $\frac{5}{8}$	6	.18

15° Angle Offset—Long Pattern



The 15° angle offset design provides greater clearance at handle end yet retains steady grip of straight wrench.

No.	Nominal Openings Inches	Approximate Extreme Length Inches	Approx. Weight Lb.	No.	Nominal Openings Inches	Approximate Extreme Length Inches	Approx. Weight Lb.
7723	$\frac{3}{8}$ & $\frac{7}{16}$	$7\frac{3}{8}$	.19	7731-B	$\frac{13}{16}$ & $\frac{7}{8}$	$12\frac{3}{4}$	.88
7725	$\frac{7}{16}$ & $\frac{1}{2}$	$7\frac{3}{4}$	.25	7033-A	$\frac{7}{8}$ & $\frac{15}{16}$	$13\frac{3}{4}$	.95
7725-A	$\frac{7}{16}$ & $\frac{9}{16}$	$8\frac{1}{4}$	.25	7733	$\frac{7}{8}$ & 1	$13\frac{3}{4}$	.95
7725-B	$\frac{1}{2}$ & $\frac{9}{16}$	$8\frac{1}{4}$	.25	7033-C	$\frac{15}{16}$ & 1	$13\frac{3}{4}$	.95
7025	$\frac{1}{2}$ & $\frac{19}{32}$	$8\frac{1}{4}$	.38	7034	$\frac{7}{8}$ & $1\frac{1}{16}$	$15\frac{1}{2}$	1.30
7727	$\frac{9}{16}$ & $\frac{5}{8}$	$9\frac{1}{4}$	.38	7034-A	$\frac{15}{16}$ & $1\frac{1}{16}$	$15\frac{1}{2}$	1.30
7027	$\frac{19}{32}$ & $1\frac{1}{16}$	$10\frac{1}{2}$	.51	7735	1 & $1\frac{1}{8}$	$17\frac{1}{4}$	2.00
7727-A	$\frac{5}{8}$ & $1\frac{1}{16}$	$10\frac{1}{2}$	.50	7735-A	$1\frac{1}{16}$ & $1\frac{1}{8}$	$17\frac{1}{4}$	2.00
7729	$\frac{5}{8}$ & $\frac{3}{4}$	$10\frac{1}{2}$	.50	7037	$1\frac{1}{16}$ & $1\frac{1}{4}$	$17\frac{1}{4}$	1.80
7029-B	$\frac{11}{16}$ & $\frac{3}{4}$	11	.51	7037-A	$1\frac{1}{8}$ & $1\frac{5}{16}$	19	2.40
7029	$\frac{11}{16}$ & $\frac{25}{32}$	11	.51	7039-B	$1\frac{1}{4}$ & $1\frac{5}{16}$	19	2.40
7729-A	$\frac{3}{4}$ & $\frac{25}{32}$	12	.56	7039	$1\frac{1}{4}$ & $1\frac{7}{16}$	19	2.40
7030	$\frac{11}{16}$ & $\frac{7}{8}$	12	.56	7039-A	$\frac{15}{16}$ & $1\frac{1}{2}$	19	2.40
7731-A	$\frac{3}{4}$ & $\frac{7}{8}$	12	.56	7040-B	$\frac{17}{16}$ & $1\frac{1}{2}$	21	5.61
7031-B	$\frac{25}{32}$ & $1\frac{1}{16}$	$12\frac{3}{4}$	.66	7041	$\frac{17}{16}$ & $1\frac{5}{8}$	23	5.59
7031	$\frac{25}{32}$ & $\frac{7}{8}$	$12\frac{3}{4}$	.66	7742-B	$1\frac{1}{2}$ & $1\frac{11}{16}$	23	5.59

See chart, page 76, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



ARMSTRONG ARMALLOY WRENCHES

BOX SOCKET PATTERN

45° Angle Double Offset Drop Forged—Selected Alloy Steel Chrome Plated

Accurately broached. Smoothly burnished. Carefully heat treated. Finished in chrome plate. Heads buffed bright and plainly stamped with catalog No. and nominal opening. Thin head walls permit use where clearance is limited.

Double hexagon (12-point) openings permit nut to be rotated where swing is limited to a 30° arc. All openings are slightly larger than nominal sizes to allow for proper clearance. Wrenches with Whitworth openings are available on special order.

45° Angle Offset—Short Pattern



No.	Nominal Openings Inches	Approximate Extreme Length, In.	Approximate Weight Lb.	No.	Nominal Openings Inches	Approximate Extreme Length, In.	Approximate Weight Lb.
9723	$\frac{3}{8}$ & $\frac{7}{16}$	4½	.10	9025	$\frac{1}{2}$ & $\frac{19}{32}$	5½	.22
9725	$\frac{7}{16}$ & $\frac{1}{2}$	5½	.19	9727	$\frac{9}{16}$ & $\frac{5}{8}$	6	.29
9725-A	$\frac{7}{16}$ & $\frac{9}{16}$	5½	.22	9728-A	$\frac{5}{8}$ & $\frac{11}{16}$	6	.29
9725-B	$\frac{1}{2}$ & $\frac{9}{16}$	5½	.22	9729-A	$\frac{11}{16}$ & $\frac{3}{4}$	7	.38

45° Angle Offset—Long Pattern



No.	Nominal Openings Inches	Approximate Extreme Length, In.	Approx. Weight Lb.	No.	Nominal Openings Inches	Approximate Extreme Length, In.	Approx. Weight Lb.
8021	$\frac{5}{16}$ & $\frac{13}{32}$	7¾	.19	8731-A	$\frac{3}{4}$ & $\frac{7}{8}$	12½	1.00
8723	$\frac{3}{8}$ & $\frac{7}{16}$	7¾	.26	8031-B	$\frac{25}{32}$ & $\frac{13}{16}$	12½	1.00
8023	$\frac{13}{32}$ & $\frac{1}{2}$	8¼	.31	8031	$\frac{25}{32}$ & $\frac{7}{8}$	12½	1.00
8725	$\frac{7}{16}$ & $\frac{1}{2}$	8¼	.37	8731-B	$\frac{13}{16}$ & $\frac{7}{8}$	12½	1.00
8725-A	$\frac{7}{16}$ & $\frac{9}{16}$	8¾	.43	8033-A	$\frac{7}{8}$ & $\frac{15}{16}$	14½	1.14
8725-B	$\frac{1}{2}$ & $\frac{9}{16}$	8¾	.43	8733	$\frac{7}{8}$ & 1	14½	1.14
8025	$\frac{1}{2}$ & $\frac{19}{32}$	8¾	.43	8033-C	$\frac{15}{16}$ & 1	14½	1.14
8727	$\frac{9}{16}$ & $\frac{5}{8}$	9¾	.59	8034	$\frac{7}{8}$ & $\frac{1}{2}$	15½	1.30
8027	$\frac{19}{32}$ & $\frac{11}{16}$	11	.84	8034-A	$\frac{15}{16}$ & $\frac{1}{2}$	15½	1.30
8727-A	$\frac{5}{8}$ & $\frac{11}{16}$	11	.80	8735	1 & $\frac{1}{8}$	17	2.30
8729	$\frac{5}{8}$ & $\frac{3}{4}$	11	.80	8735-A	$\frac{11}{16}$ & $\frac{1}{8}$	17	2.30
8029-B	$\frac{11}{16}$ & $\frac{3}{4}$	11	.84	8037	$\frac{11}{16}$ & $\frac{1}{4}$	17	2.10
8029	$\frac{11}{16}$ & $\frac{25}{32}$	11	.84	8037-A	$\frac{11}{8}$ & $\frac{13}{16}$	19	3.30
8729-A	$\frac{3}{4}$ & $\frac{25}{32}$	12½	1.00	8039-B	$\frac{11}{4}$ & $\frac{13}{16}$	19	3.30
8030	$\frac{11}{16}$ & $\frac{7}{8}$	12½	1.00	8039	$\frac{11}{4}$ & $\frac{17}{16}$	19	3.30
8731	$\frac{3}{4}$ & $\frac{13}{16}$	12½	1.00	8039-A	$\frac{13}{16}$ & $\frac{1}{2}$	19	3.30

45° Angle Offset—Long Pattern, Heavy Duty



No.	Nominal Openings Inches	Approximate Extreme Length, In.	Approx. Weight Lb.	No.	Nominal Openings Inches	Approximate Extreme Length, In.	Approx. Weight Lb.
8040-B	$\frac{1}{2}$ & $\frac{1}{2}$	21	6.26	8045	$\frac{13}{16}$ & 2	25	8.49
8041	$\frac{1}{2}$ & $\frac{15}{8}$	23	5.70	8049	$\frac{23}{16}$ & $\frac{23}{8}$	27	10.23
8742-B	$\frac{1}{2}$ & $\frac{11}{16}$	23	5.79	8053	$\frac{23}{16}$ & $\frac{23}{4}$	30	14.69

See chart, page 76, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws

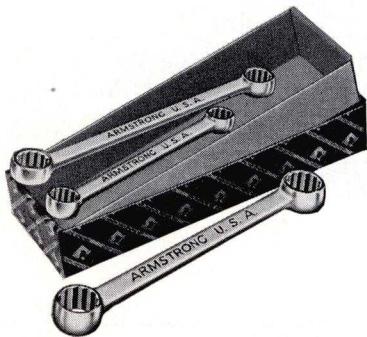


ARMSTRONG ARMALLOY BOX SOCKET WRENCH SETS

15° Angle, Offset Pattern and 45° Angle, Double Offset Pattern
Drop Forged—Selected Alloy Steel
Chrome Plated

Set No. 6703-C

15° Angle, Offset—Short Pattern



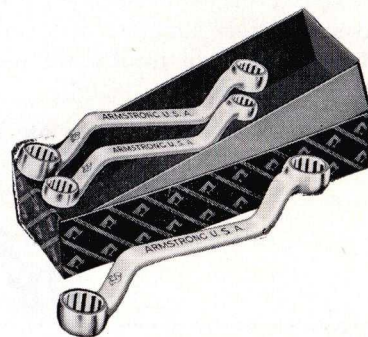
Three wrenches with openings $\frac{3}{8}$ to $\frac{5}{8}$ ".
Furnished in cardboard box.
Approximate weight, .5 lb.

Wrenches included are:

No.	Openings, Inches	Length, Inches
6723	$\frac{3}{8}$ & $\frac{7}{16}$	$4\frac{1}{2}$
6725	$\frac{7}{16}$ & $\frac{1}{2}$	$5\frac{1}{2}$
6727	$\frac{9}{16}$ & $\frac{5}{8}$	6

Set No. 9703-C

45° Angle, Double Offset—Short Pattern



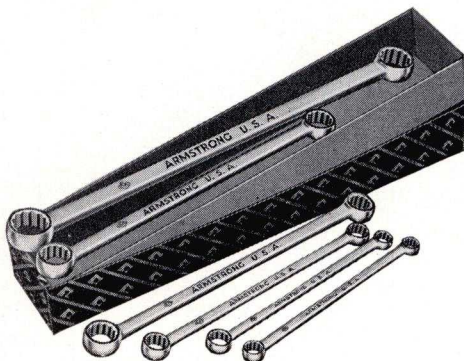
Three wrenches with openings $\frac{3}{8}$ to $\frac{5}{8}$ ".
Furnished in cardboard box.
Approximate weight, .5 lb.

Wrenches included are:

No.	Openings, Inches	Length, Inches
9723	$\frac{3}{8}$ & $\frac{7}{16}$	$4\frac{1}{2}$
9725	$\frac{7}{16}$ & $\frac{1}{2}$	$5\frac{1}{2}$
9727	$\frac{9}{16}$ & $\frac{5}{8}$	6

Set No. 7006-C

15° Angle, Offset—Long Pattern



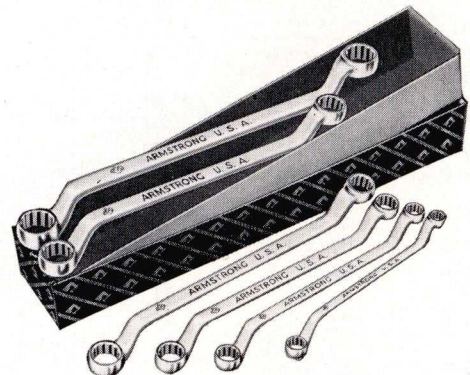
Six wrenches with openings $\frac{3}{8}$ to 1".
No duplications.
Furnished in cardboard box.
Approximate weight, 2.75 lb.

Wrenches included are:

No.	Openings, Inches	Length, Inches
7723	$\frac{3}{8}$ & $\frac{7}{16}$	$7\frac{3}{8}$
7025	$\frac{1}{2}$ & $\frac{19}{32}$	$8\frac{1}{4}$
7727	$\frac{9}{16}$ & $\frac{5}{8}$	$9\frac{1}{4}$
7029	$\frac{11}{16}$ & $\frac{25}{32}$	11
7731-A	$\frac{3}{4}$ & $\frac{7}{8}$	12
7033-C	$\frac{15}{16}$ & 1	$13\frac{3}{4}$

Set No. 8006-C

45° Angle, Double Offset—Long Pattern



Six wrenches with openings $\frac{3}{8}$ to 1".
No duplications.
Furnished in cardboard box.
Approximate weight, 4.25 lb.

Wrenches included are:

No.	Openings, Inches	Length, Inches
8723	$\frac{3}{8}$ & $\frac{7}{16}$	$7\frac{3}{4}$
8025	$\frac{1}{2}$ & $\frac{19}{32}$	$8\frac{3}{4}$
8727	$\frac{9}{16}$ & $\frac{5}{8}$	$9\frac{3}{4}$
8029	$\frac{11}{16}$ & $\frac{25}{32}$	11
8731-A	$\frac{3}{4}$ & $\frac{7}{8}$	$12\frac{1}{2}$
8033-C	$\frac{15}{16}$ & 1	$14\frac{1}{2}$



ARMSTRONG ARMALLOY WRENCHES

BOX SOCKET PATTERN

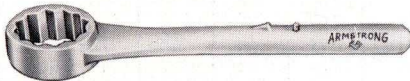
Stub End Type for Tubular Handles
Double Hexagon (12-Point) Openings
Drop Forged—Selected Alloy Steel
Cadmium Plated

Accurately broached. Smoothly burnished. Carefully heat treated. Finished in cadmium plate. Each wrench plainly stamped with catalog number and nominal opening. All openings broached slightly larger than nominal sizes listed to allow for proper clearance. Wrenches available in both straight and 45° angle offset patterns.

Equipped with improved handle stop and positive locking device enabling one tubular handle to be used with various sizes and styles of wrenches. Single or double end wrench of size and style required can be quickly assembled.

Wrenches with special openings available on special order.

Straight Pattern



45° Angle Offset



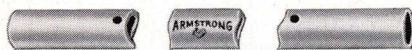
No.	Nominal Opening Inches	For Handle No.	Wrench less Handle Inches	With Handle Inches	Approx. Weight Lb.
S-34	1 $\frac{1}{16}$	M-180	7 $\frac{7}{32}$	22 $\frac{5}{8}$	.81
S-36	1 $\frac{1}{8}$	M-180	7 $\frac{7}{8}$	22 $\frac{5}{8}$	.87
S-40	1 $\frac{1}{4}$	M-180	7 $\frac{31}{32}$	22 $\frac{5}{8}$	1.25
S-42	1 $\frac{3}{16}$	M-280	13	30 $\frac{3}{4}$	1.25
S-44	1 $\frac{3}{8}$	M-280	13 $\frac{1}{16}$	30 $\frac{3}{4}$	1.50
S-46	1 $\frac{7}{16}$	M-280	13 $\frac{3}{32}$	30 $\frac{3}{4}$	1.50
S-48	1 $\frac{1}{2}$	M-280	13 $\frac{1}{8}$	30 $\frac{7}{8}$	1.75
S-52	1 $\frac{5}{8}$	M-280	13 $\frac{3}{32}$	31	2.25
S-54	1 $\frac{11}{16}$	M-320	13 $\frac{1}{4}$	37	2.25
S-56	1 $\frac{3}{4}$	M-320	13 $\frac{3}{32}$	37	2.25
S-58	1 $\frac{13}{16}$	M-320	13 $\frac{11}{32}$	37 $\frac{1}{16}$	2.50
S-60	1 $\frac{7}{8}$	M-320	13 $\frac{3}{8}$	37 $\frac{1}{8}$	2.75
S-64	2	M-320	13 $\frac{15}{32}$	37 $\frac{1}{4}$	3.00
S-70	2 $\frac{3}{16}$	M-320	13 $\frac{3}{16}$	37 $\frac{1}{4}$	3.00
*S-72	2 $\frac{1}{4}$	M-360	13 $\frac{5}{8}$	43 $\frac{3}{8}$	3.50
S-76	2 $\frac{3}{8}$	M-360	13 $\frac{15}{16}$	44 $\frac{1}{8}$	5.00
S-78	2 $\frac{7}{16}$	M-360	13 $\frac{15}{16}$	44 $\frac{1}{8}$	4.75
S-82	2 $\frac{9}{16}$	M-360	14 $\frac{3}{32}$	44 $\frac{9}{32}$	4.75
S-84	2 $\frac{5}{8}$	M-360	14 $\frac{3}{32}$	44 $\frac{9}{32}$	5.25
S-88	2 $\frac{3}{4}$	M-360	14 $\frac{3}{16}$	44 $\frac{3}{8}$	5.25
S-90	2 $\frac{13}{16}$	M-360	14 $\frac{1}{4}$	44 $\frac{7}{16}$	6.00
S-94	2 $\frac{15}{16}$	M-360	14 $\frac{9}{32}$	44 $\frac{15}{32}$	6.00
S-96	3	M-360	14 $\frac{9}{32}$	44 $\frac{15}{32}$	6.00
S-98	3 $\frac{1}{8}$	M-360	14 $\frac{13}{32}$	44 $\frac{19}{32}$	6.00
S-108	3 $\frac{3}{8}$	M-360	14 $\frac{1}{2}$	44 $\frac{11}{16}$	6.00
S-112	3 $\frac{1}{2}$	M-420	18 $\frac{19}{32}$	53 $\frac{1}{32}$	8.50

*No. S-72 requires No. M-360 Handle.

No.	Nominal Opening Inches	For Handle No.	Wrench less Handle Inches	With Handle Inches	Approx. Weight Lb.
O-34	1 $\frac{1}{16}$	M-180	7 $\frac{7}{32}$	22 $\frac{5}{8}$	.94
O-36	1 $\frac{1}{8}$	M-180	7 $\frac{7}{8}$	22 $\frac{5}{8}$	.94
O-40	1 $\frac{1}{4}$	M-180	7 $\frac{31}{32}$	22 $\frac{5}{8}$	1.25
O-42	1 $\frac{5}{16}$	M-280	10 $\frac{1}{2}$	30 $\frac{1}{4}$	1.25
O-44	1 $\frac{3}{8}$	M-280	10 $\frac{1}{16}$	30 $\frac{3}{16}$	1.50
O-46	1 $\frac{7}{16}$	M-280	10 $\frac{19}{32}$	30 $\frac{3}{8}$	1.50
O-48	1 $\frac{1}{2}$	M-280	10 $\frac{9}{8}$	30 $\frac{3}{8}$	1.75
O-52	1 $\frac{5}{8}$	M-280	10 $\frac{23}{32}$	30 $\frac{1}{2}$	2.25
O-54	1 $\frac{11}{16}$	M-320	13 $\frac{1}{4}$	37	2.25
O-56	1 $\frac{3}{4}$	M-320	13 $\frac{3}{16}$	37	2.25
O-58	1 $\frac{13}{16}$	M-320	13 $\frac{11}{32}$	37 $\frac{1}{8}$	2.50
O-60	1 $\frac{7}{8}$	M-320	13 $\frac{3}{8}$	37 $\frac{1}{8}$	2.75
O-64	2	M-320	13 $\frac{15}{32}$	37 $\frac{1}{4}$	3.00
O-70	2 $\frac{3}{16}$	M-320	13 $\frac{19}{32}$	37 $\frac{3}{8}$	3.00
†O-72	2 $\frac{1}{4}$	M-320	13 $\frac{5}{8}$	37 $\frac{3}{8}$	3.50
O-76	2 $\frac{3}{8}$	M-360	13 $\frac{25}{32}$	43 $\frac{13}{16}$	5.00
O-78	2 $\frac{7}{16}$	M-360	13 $\frac{27}{16}$	43 $\frac{1}{2}$	4.75
O-82	2 $\frac{9}{16}$	M-360	13 $\frac{29}{16}$	43 $\frac{3}{8}$	4.75
O-84	2 $\frac{5}{8}$	M-360	13 $\frac{31}{16}$	43 $\frac{3}{8}$	5.25
O-88	2 $\frac{3}{4}$	M-360	13 $\frac{33}{16}$	43 $\frac{3}{8}$	5.25
O-90	2 $\frac{13}{16}$	M-360	13 $\frac{35}{16}$	43 $\frac{1}{2}$	6.00
O-94	2 $\frac{15}{16}$	M-360	13 $\frac{37}{16}$	43 $\frac{1}{2}$	6.00
O-96	3	M-360	13 $\frac{39}{16}$	43 $\frac{1}{2}$	6.00
O-98	3 $\frac{1}{8}$	M-360	14 $\frac{1}{4}$	43 $\frac{5}{8}$	6.00
O-108	3 $\frac{3}{8}$	M-360	14 $\frac{1}{4}$	43 $\frac{7}{8}$	6.00
O-112	3 $\frac{1}{2}$	M-420	18 $\frac{3}{4}$	50 $\frac{5}{8}$	8.50

†No. O-72 requires No. M-320 Handle.

SEAMLESS STEEL TUBULAR HANDLES



For use with above wrenches.

Handle No.	Approximate Extreme Length, Inches	Inside Diameter Inches	Outside Diameter Inches	Approximate Weight Lb.
M-180	18	1 $\frac{1}{16}$	$\frac{7}{8}$	2.42
M-280	24	$\frac{7}{8}$	1 $\frac{1}{8}$	3.58
M-320	30	1	1 $\frac{1}{4}$	4.68
M-360	36	1 $\frac{1}{8}$	1 $\frac{7}{16}$	6.33
M-420	42	1 $\frac{5}{8}$	2	8.53



WRENCH OPENING CHART

American Standard Bolts, Nuts and Cap Screws

Nominal Wrench Opening Inches	Regular Series				Heavy Series				Light Series		Finished Series		FOR HEX HEAD CAP SCREWS DIAMETER SCREWS INCHES		For Set Screws Diam. In.	For Machine Screw Nuts and Stove Bolt Nuts
	FOR NUTS SIZE BOLTS INCHES		FOR BOLTS DIAMETER INCHES		FOR NUTS SIZE BOLTS INCHES		FOR BOLTS DIAMETER INCHES		FOR NUTS SIZE BOLTS INCHES		For Nuts and Thick Nuts Size Bolts In.	For Bolts Diam. In.	NEW	OLD	OLD and NEW	OLD and NEW
	NEW	OLD	NEW	OLD	NEW	OLD	NEW	OLD	NEW	OLD	NEW	NEW				
5/32	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	No. 0 & 1
3/16	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	No. 2 & 3
7/32	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	No. 4
1/4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	No. 5 & 6
5/16	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	No. 8
11/32	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	No. 10
3/8	...	...	1/4	1/4	...	...	...	...	...	...	...	...	...	...	3/8	No. 12 & 1/4
7/16	1/4	1/4	1/4	...	...	...	...	...	1/4	1/4	1/4	1/4	1/4	1/4	1/16	...
1/2	...	...	5/16	5/16	1/4	1/4	...	1/4	...	5/16	5/16	5/16	5/16	5/16	1/2	...
9/16	5/16	5/16	3/8	3/8	5/16	...	...	...	3/8	3/8	3/8	3/8	3/8	3/8	9/16	...
19/32	...	...	...	...	...	5/16	...	5/16	...	...	...	...	...	...	...	...
5/8	3/8	3/8	7/16	7/16	...	...	...	...	7/16	...	7/16	7/16	7/16	7/16	5/8	3/8
11/16	...	...	...	...	3/8	3/8	...	3/8	...	...	7/16	...	...	...	...	...
3/4	7/16	7/16	1/2	1/2	7/16	...	...	...	1/2	1/2	1/2	1/2	1/2	1/2	3/4	...
25/32	...	...	...	...	...	7/16	...	7/16	...	...	...	...	...	...	...	...
13/16	1/2	1/2	9/16	...	...	...	...	...	...	...	...	9/16	9/16	9/16	...	...
7/8	9/16	9/16	...	9/16	1/2	1/2	1/2	1/2	9/16	9/16	9/16	9/16	9/16	9/16	7/8	...
15/16	...	...	5/8	5/8	9/16	9/16	...	9/16	...	5/8	5/8	5/8	5/8	5/8	...	...
1	5/8	5/8	...	...	...	...	...	...	...	...	...	...	...	3/4	1	...
1 1/16	...	...	...	...	5/8	5/8	5/8	5/8	...	3/4	...	...	...	...	...	...
1 1/8	3/4	3/4	3/4	3/4	...	...	...	...	...	...	3/4	3/4	3/4	3/4	7/8	1 1/8
1 1/4	...	...	...	...	3/4	3/4	3/4	3/4	...	7/8	...	...	...	...	...	1 1/4
1 5/16	7/8	7/8	7/8	7/8	...	...	...	...	...	...	7/8	7/8	7/8	7/8	1	...
1 3/8	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1 7/16	...	...	...	...	7/8	7/8	7/8	7/8	...	1	...	...	...	...	...	1 3/8
1 1/2	1	1	1	1	...	...	...	...	...	...	1	1	1	1 1/8	1 1/2	...
1 5/8	...	...	...	...	1	1	1	1	...	1 1/8	...	...	...	...	...	...
1 11/16	1 1/8	1 1/8	1 1/8	1 1/8	...	...	...	...	...	...	1 1/8	1 1/8	1 1/8	1 1/4	...	...
1 13/16	...	...	...	...	1 1/8	1 1/8	1 1/8	1 1/8	...	1 1/4	...	...	...	...	...	...
1 7/8	1 1/4	1 1/4	1 1/4	1 1/4	...	...	...	...	...	...	1 1/4	1 1/4	1 1/4	...	...	...
2	...	...	...	...	1 1/4	1 1/4	1 1/4	1 1/4	...	1 3/8	...	...	...	...	...	...
2 1/16	1 3/8	1 3/8	1 3/8	1 3/8	...	...	...	...	...	...	...	1 3/8	1 3/8	1 3/8	...	...
2 3/16	...	...	...	...	1 3/8	1 3/8	1 3/8	1 3/8	...	1 1/2	...	...	...	...	...	...
2 1/4	1 1/2	1 1/2	1 1/2	1 1/2	...	...	...	...	...	...	...	1 1/2	1 1/2	1 1/2	...	...
2 3/8	...	...	...	...	1 1/2	1 1/2	1 1/2	1 1/2	...	...	...	...	...	...	...	...
2 7/16	1 5/8	1 5/8	1 5/8	1 5/8	...	...	...	...	...	...	...	1 5/8	1 5/8	...	...	...
2 9/16	...	...	...	...	1 5/8	1 5/8	1 5/8	1 5/8	...	...	...	...	...	...	...	...
2 5/8	1 3/4	1 3/4	1 3/4	1 3/4	...	...	...	...	...	...	...	1 3/4	1 3/4	...	...	...
2 3/4	...	...	...	...	1 3/4	1 3/4	1 3/4	1 3/4	...	...	...	...	...	...	...	...
2 13/16	1 7/8	1 7/8	1 7/8	1 7/8	...	...	...	...	...	...	...	1 7/8	1 7/8	...	...	...
2 15/16	...	...	...	...	1 7/8	1 7/8	1 7/8	1 7/8	...	...	...	...	...	...	...	...
3	2	2	2	2	...	...	...	...	...	...	2	2	...	...	...	...
3 1/8	...	...	...	...	2	2	2	2	...	...	...	...	...	...	...	...
3 3/8	2 1/4	2 1/4	2 1/4	2 1/4	...	...	...	...	...	...	...	2 1/4	2 1/4	...	...	...
3 1/2	...	...	...	...	2 1/4	2 1/4	2 1/4	2 1/4	...	...	...	...	...	...	...	...
3 3/4	2 1/2	2 1/2	2 1/2	2 1/2	...	...	...	...	...	...	...	2 1/2	2 1/2	...	...	...
3 7/8	...	...	...	...	2 1/2	2 1/2	2 1/2	2 1/2	...	...	...	...	...	...	...	...
4 1/8	2 3/4	2 3/4	2 3/4	2 3/4	...	...	...	...	...	...	...	2 3/4	2 3/4	...	...	...
4 1/4	...	...	...	...	2 3/4	2 3/4	2 3/4	2 3/4	...	...	...	...	...	...	...	...
4 1/2	3	3	3	3	...	...	...	...	...	...	...	3	3	...	...	...
4 5/8	...	...	...	...	3	3	3	3	...	...	...	...	...	...	...	...
4 7/8	...	...	3 1/4	...	...	...	...	...	...	...	...	...	...	...	...	...
5	...	...	...	...	3 1/4	3 1/4	...	3 1/4	...	...	...	...	...	...	...	...
5 1/4	...	...	3 1/2	...	...	...	...	...	...	...	...	...	...	...	...	...
5 3/8	...	...	...	...	3 1/2	3 1/2	...	3 1/2	...	...	...	...	...	...	...	...
5 5/8	...	...	3 3/4	...	...	...	...	...	...	...	...	...	...	...	...	...
5 3/4	...	...	...	...	3 3/4	3 3/4	...	3 3/4	...	...	...	...	...	...	...	...
6	...	...	4	...	...	...	...	...	...	...	...	...	...	...	...	...
6 1/8	...	...	...	...	4	4	...	4	...	...	...	...	...	...	...	...

*Square only.

ARMSTRONG ARMALLOY SOCKET WRENCHES



ARMSTRONG ARMALLOY Socket Wrenches are designed to embody strength, dependability and handiness—qualities which have been recognized features of ARMSTRONG TOOLS for over 60 years.

ARMSTRONG ARMALLOY Socket Wrenches are made from a selected grade alloy steel, are machined and gauged to accurate limits, heat treated, hardened and beautifully finished in chrome plate. Furnished in five drive sizes with a full assortment of driving units, sockets and attachments which permit assembly of the proper wrench at all times.

NM—MINIATURE SERIES— $\frac{1}{4}$ -Inch Square Drive.

Ideally suited for work calling for delicate adjustments. Includes openings $\frac{3}{16}$ to $\frac{9}{16}$ inch—regular 4, 6, 8 and 12-point sockets and Extra Deep 6-point sockets. (Shown on pages 78 and 79).

F—LIGHT SERIES— $\frac{3}{8}$ -Inch Square Drive.

Strong and light with straight thin wall sockets. Especially suitable for work in close quarters. Includes openings $\frac{1}{4}$ to $\frac{7}{8}$ inch—regular 4-point (one size only), regular 8-point, regular 12-point, extra deep 12-point and flex 12-point sockets. (Shown on pages 80 to 83).

S—STANDARD SERIES— $\frac{1}{2}$ -Inch Square Drive.

Perfect for general service work of all types. Slim head walls enable these sockets to operate with a sure grip in close or obstructed places. Includes openings $\frac{5}{16}$ to $1\frac{1}{4}$ inches—regular 6-point, regular 8-point, regular 12-point, extra deep 12-point and flex 12-point sockets. (Shown on pages 84 to 89).

H—HEAVY DUTY SERIES— $\frac{3}{4}$ -Inch Square Drive.

Especially designed for heavy duty service where reliable strength without unnecessary weight is required. Includes openings $\frac{7}{8}$ to $2\frac{1}{4}$ inches—regular 12-point and extra deep 12-point sockets. (Shown on pages 92 and 93).

X—EXTRA HEAVY DUTY SERVICE—1-Inch Square Drive.

This line is designed to handle the most rugged jobs where maximum strength is required. Includes openings $1\frac{1}{16}$ to $3\frac{1}{8}$ inches—regular 12-point sockets. (Shown on pages 94 and 95).



ARMSTRONG ARMALLOY SOCKET WRENCHES

Miniature Series— $\frac{1}{4}$ " Square Drive

SOCKETS

Made from selected alloy steel. Gauged to accurate limits. Heat treated and tested to assure maximum strength. Finished in chrome plate.

Invaluable for all work on nuts from $\frac{3}{16}$ to $\frac{9}{16}$ " inclusive, across flats. Especially suited for work on generators, ignition units, radios and other work requiring secure grip for delicate adjustment.



Hexagon
6-Point
Opening



Double
Hexagon
12-Point
Opening



Square,
Double
Square
8-Point
Opening



Extra
Deep,
Hexagon
6-Point
Opening

Nominal Opening Inches	6 and 12-Point Openings for Hex Nuts						4-Point and †8-Point Openings	
	6-Point Sockets		12-Point Sockets		*Extra Deep 6-Point Sockets		No.	Approx. Wt., Lb.
	No.	Approx. Wt., Lb.	No.	Approx. Wt., Lb.	No.	Approx. Wt., Lb.		
$\frac{3}{16}$	NM-606	.02					NM-406	.03
$\frac{7}{32}$	NM-607	.02					NM-407	.03
$\frac{1}{4}$	NM-608	.02			NMD-608	.03	NM-408	.03
$\frac{9}{32}$	NM-609	.02			NMD-609	.03		
$\frac{5}{16}$			NM-1210	.02	NMD-610	.04	†NM-810	.03
$\frac{11}{32}$			NM-1211	.03	NMD-611	.04		
$\frac{3}{8}$			NM-1212	.03	NMD-612	.04	†NM-812	.05
$\frac{7}{16}$			NM-1214	.04	NMD-614	.04		
$\frac{1}{2}$			NM-1216	.05				
$\frac{9}{16}$			NM-1218	.06				

*All $\frac{1}{4}$ " Drive Extra Deep Sockets, 2" long.

DRIVE PARTS

No. NMA-51 Reversible Ratchet can be instantly reversed by snapping the reversing lever to position ON or position OFF. This feature is particularly convenient for close quarter operations. Ratchets will rotate the socket where working arc is limited to only 15°. All parts made entirely of alloy and high tensile steel, carefully heat treated to maximum strength. Improved design prevents excessive wear and looseness common to the ordinary reversible ratchet. Length, $4\frac{1}{2}$ ".



Drop Forged
No. NMA-51 Reversible Ratchet



No. NM-20A Sliding T Handle



No. NM-42 Flexible Hinge Handle



No. NM-42B Sliding Bar



No. NM-110 Extension Driver



No. NM-100 Short Moulded
Shock-Proof Drive Handle



Nos. MF-130, MF-131
Adapters



No. FM-150
Plug Adapter



No. NM-106 Moulded Shock-Proof Drive Handle



No. NM-126 Regular Screw Driver Socket Attachment

No.	Description	Approx. Wt., Lb.	No.	Description	Approx. Wt., Lb.
NMA-51	Reversible Ratchet, $4\frac{1}{2}$ " Long.....	.22	NM-110	Extension-Driver, with knurled Spin Grip. Knurled Handle may be locked for use as a driver. $5\frac{1}{2}$ " long .....	.38
NM-20A	Sliding T Handle, $4\frac{1}{2}$ " Long.....	.13	NM-102	Extension, 2" Long.....	.06
NM-42	Flexible Hinge Handle, $5\frac{3}{4}$ " Long; Drilled for $\frac{1}{4}$ " Sliding Bar.....	.19	NM-115	Extension, 6" Long.....	.16
NM-42B	Sliding Bar, $\frac{1}{4} \times 4\frac{1}{2}$ "; For No. NM-42.....	.09	NM-116	Extension, 14" Long.....	.35
NM-100	Short Moulded Shock-Proof Drive Handle, with Plastic Grip; $2\frac{1}{4}$ " Long.....	.06	NM-126	Regular Screw Driver Socket Attachment, 6" Long.....	.14
NM-106	Moulded Shock-Proof Drive Handle, with Plastic Grip; Has $\frac{1}{4}$ " Square Drive Opening in Butt of Handle; 6" Long.....	.13	MF-130	Adapter, $\frac{1}{4}$ " Sq. Female, $\frac{3}{8}$ " Sq. Male....	.06
			MF-131	Adapter, $\frac{1}{4}$ " Sq. Male, $\frac{3}{8}$ " Sq. Female....	.06
			FM-150	Plug Adapter, $\frac{3}{8}$ " Sq. Male, $\frac{1}{4}$ " Sq. Male..	.05

See chart, page 76, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



ARMSTRONG ARMALLOY SOCKET WRENCH SETS

Miniature Series— $\frac{1}{4}$ " Square Drive

Set No. NM-10

Contents, 10 Pieces: 8 Sockets, 2 Drive Parts. Complete with Steel Case. Approximate weight, 1 lb.



Sockets

One Each No.	Nominal Opening Inches
NM-606	$\frac{3}{16}$
NM-607	$\frac{7}{32}$
NM-608	$\frac{1}{4}$
NM-609	$\frac{9}{32}$
NM-1210	$\frac{5}{16}$
NM-1211	$\frac{11}{32}$
NM-1212	$\frac{3}{8}$
NM-1214	$\frac{7}{16}$

Drive Parts

No. **NM-42**, Flexible Hinge Handle, $5\frac{3}{4}$ " Long.
No. **NM-42B**, Sliding Bar, $4\frac{1}{2}$ " Long.

No. NM-18P

Contents, 18 Pieces: 8 Sockets, 4 Drive Parts, 5 Miniature Open End Wrenches, 1 Miniature Pliers. Complete with Steel Case. Approx. weight, 1.75 lb.

Set No. **NM-18**, Same, less Pliers; Approx. wt., 1.66 lb.



Sockets and Wrenches

One Each No.	Nom. Opening Inches
NM-606	$\frac{3}{16}$
NM-607	$\frac{7}{32}$
NM-608	$\frac{1}{4}$
NM-609	$\frac{9}{32}$
NM-1210	$\frac{5}{16}$
NM-1211	$\frac{11}{32}$
NM-1212	$\frac{3}{8}$
NM-1214	$\frac{7}{16}$
*H-10	$\frac{3}{16}$ & $\frac{7}{32}$
*H-12	$\frac{1}{4}$ & $\frac{9}{32}$
*H-14	$\frac{5}{16}$ & $\frac{11}{32}$
*H-16	$\frac{3}{8}$ & $\frac{7}{16}$
*H-18	$\frac{13}{32}$ & $\frac{15}{32}$

*Armalo Miniature 15° Angle Open End Wrench.

Drive Parts

No. **NMA-51**, Reversible Ratchet, $4\frac{1}{2}$ " Long.
No. **NM-20A**, Sliding T Handle, $4\frac{1}{2}$ " Long.
No. **NM-102**, Extension, 2" Long.
No. **NM-115**, Extension, 6" Long.
No. **1519**, Miniature Pliers.



Set No. NM-10A

Contents, 10 Pieces: 8 Sockets, 2 Drive Parts. Complete with Steel Case. Approximate weight, 1 lb.



Sockets

One Each No.	Nominal Opening Inches
NM-606	$\frac{3}{16}$
NM-607	$\frac{7}{32}$
NM-608	$\frac{1}{4}$
NM-609	$\frac{9}{32}$
NM-1210	$\frac{5}{16}$
NM-1211	$\frac{11}{32}$
NM-1212	$\frac{3}{8}$
NM-1214	$\frac{7}{16}$

Drive Parts

No. **NMA-51**, Reversible Ratchet, $4\frac{1}{2}$ " Long.
No. **NM-102**, Extension, 2" Long.

No. NM-19P

Contents, 19 Pieces: 8 Sockets, 4 Drive Parts, 1 Miniature Pliers, No. 1186C 6-Piece Combination Wrench Set. Complete with Steel Case. Approx. weight 2.37 lb.

Set No. **NM-19**, Same, less Pliers; Approx. wt., 2.3 lb.



Sockets and Wrenches

One Each No.	Nom. Opening Inches
NM-606	$\frac{3}{16}$
NM-607	$\frac{7}{32}$
NM-608	$\frac{1}{4}$
NM-609	$\frac{9}{32}$
NM-1210	$\frac{5}{16}$
NM-1211	$\frac{11}{32}$
NM-1212	$\frac{3}{8}$
NM-1214	$\frac{7}{16}$
†1160	$\frac{3}{8}$ & $\frac{3}{4}$
†1161	$\frac{7}{16}$ & $\frac{7}{8}$
†1162	$\frac{1}{2}$ & $1\frac{1}{2}$
†1163	$\frac{9}{16}$ & $\frac{9}{8}$
†1164	$\frac{5}{8}$ & $\frac{5}{4}$
†1166	$\frac{3}{4}$ & $\frac{3}{2}$

†Armalo Combination Wrench.

Drive Parts and Combination Wrench Set

No. **NMA-51**, Reversible Ratchet, $4\frac{1}{2}$ " Long.
No. **NM-20A**, Sliding T Handle, $4\frac{1}{2}$ " Long.
No. **NM-102**, Extension, 2" Long.
No. **NM-115**, Extension, 6" Long.
No. **1519**, Miniature Pliers.

Set No. NM-24P

Contents, 24 Pieces: 8 Sockets, 5 Drive Parts, 1 No. 1519 Pliers. 10 15°—75° Angle Miniature Wrenches. Complete with Steel Case. Approximate weight, 2 lb.

Set No. **NM-24**, Above Set, less Pliers; Approximate weight, 1.9 lb.

Sockets and Wrenches

One Each No.	Nominal Opening, In.	One Each No.	Nominal Opening, In.	One Each No.	Nominal Opening, In.
NM-606	$\frac{3}{16}$	NM-1212	$\frac{3}{8}$	*1116	$\frac{1}{4}$ & $\frac{1}{4}$
NM-607	$\frac{7}{32}$	NM-1214	$\frac{7}{16}$	*1118	$\frac{9}{32}$ & $\frac{9}{32}$
NM-608	$\frac{1}{4}$	*1112	$\frac{3}{16}$ & $\frac{3}{16}$	*1120	$\frac{5}{16}$ & $\frac{5}{16}$
NM-609	$\frac{9}{32}$	*1113	$\frac{13}{64}$ & $\frac{13}{64}$	*1122	$\frac{11}{32}$ & $\frac{11}{32}$
NM-1210	$\frac{5}{16}$	*1114	$\frac{7}{32}$ & $\frac{7}{32}$	*1124	$\frac{3}{8}$ & $\frac{3}{8}$
NM-1211	$\frac{11}{32}$	*1115	$\frac{15}{64}$ & $\frac{15}{64}$	*1128	$\frac{7}{16}$ & $\frac{7}{16}$

*Armalo miniature wrench, 15° and 75° angle openings.

Drive Parts

No. **NMA-51**, Revers. Ratchet, $4\frac{1}{2}$ " Long.
No. **NM-20A**, Sliding T Handle, $4\frac{1}{2}$ " Long.
No. **NM-106**, Shock-Proof Handle, 6" Long.
No. **NM-102**, Extension 2" Long.
No. **NM-115**, Extension 6" Long.
No. **1519**, Miniature Pliers.



ARMSTRONG ARMALLOY SOCKET WRENCHES

Light Series— $\frac{3}{8}$ " Square Drive

SOCKETS

Made from selected alloy steel.

Gauged to accurate limits.

Heat treated and tested to assure maximum strength.

Finished in chrome plate.

Designed with thin head walls which grip the crowded or awkwardly placed nut, yet provide sufficient strength to loosen stubborn nuts and bolts. Especially useful in general work of light character.



12-Point
Opening



Extra Deep
12-Point
Opening



Flex
Socket



Crowfoot
Attachment



8-Point
Opening

Nominal Opening Inches	12-Point Openings						Crowfoot Attachments		*4-Point and 8-Point Openings	
	Regular		Extra Deep From 2 to 2½" Long (Cross Hole for 5/16" Bar)		Flex Sockets				Regular All 1" Long	
	No.	Approx. Weight Lb.	No.	Approx. Weight Lb.	No.	Approx. Weight Lb.	No.	Approx. Weight Lb.	No.	Approx. Weight Lb.
1/4	F-1208	.04	.....	...	.....	...	.....	...	.....	...
9/32	.....	...	.....	...	.....	...	.....	...	*F-409	.04
5/16	F-1210	.04	.....	...	.....	...	.....	...	F-810	.05
11/32	F-1211	.05	.....	...	.....	...	.....	...	.....	...
3/8	F-1212	.05	FD-1212	.08	FX-1212	.09	FC-1700	.08	F-812	.06
7/16	F-1214	.05	FD-1214	.10	FX-1214	.09	FC-1701	.08	F-814	.07
1/2	F-1216	.06	FD-1216	.10	FX-1216	.09	FC-1001	.11	F-816	.22
17/32	.....	...	.....	...	.....	...	.....	...	.....	...
9/16	F-1218	.07	FD-1218	.13	FX-1218	.10	FC-1702	.11	F-818	.12
19/32	F-1219	.08	.....	...	.....	...	.....	...	.....	...
5/8	F-1220	.09	FD-1220	.16	FX-1220	.11	FC-1703	.18	F-820	.18
11/16	F-1222	.11	FD-1222	.22	FX-1222	.11	FC-1003	.18	.....	...
3/4	F-1224	.13	FD-1224	.22	FX-1224	.13	.....	...	.....	...
25/32	F-1225	.14	.....	...	.....	...	.....	...	.....	...
13/16	F-1226	.15	FD-1226	.24	.....	...	.....	...	.....	...
7/8	F-1228	.18	FD-1228	.25	.....	...	.....	...	.....	...

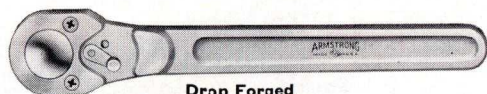
See chart, page 76, listing nominal wrench openings for American Standard Bolts Nuts and Cap Screws



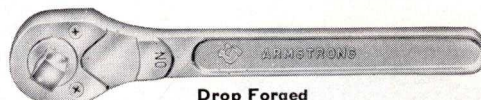
ARMSTRONG ARMALLOY SOCKET WRENCHES

Light Series— $\frac{3}{8}$ " Square Drive

DRIVE PARTS



Drop Forged
No. FA-51 Reversible Ratchet



Drop Forged
No. FA-50 Plug Connector Type Ratchet



No. F-20A Sliding T Handle



No. F-40 Flexible Hinge Handle



No. F-40B Sliding Bar



No. F-15 Speeder



No. F-30 Offset Handle



Nos. MF-130, FS-130
Adapters



Nos. F-103, F-110, F-115, F-117 Extension Bars



No. F-150
Plug Connector



Nos. FM-150, FS-151
Plug Adapters



No. F-140 Universal Joint

No. FA-51 Reversible Ratchet can be instantly reversed by snapping reversing lever to position ON or position OFF, particularly convenient for close quarter operations. The ratchet will rotate socket where working arc is limited to only 15°. All parts made entirely of alloy and high tensile steel, carefully heat treated to maximum strength. Improved design prevents excessive wear and looseness common to the ordinary reversible ratchet. Length, 7".

No. FA-50 Plug Connector Type Ratchet—In this style, turning the ratchet over reverses its action. Ratchets are furnished with removable plug connectors. Ratchet will rotate socket where working arc is limited to only 15°. Alloy and high tensile steel parts, heat treated to maximum strength. Chrome plate finish. Length, 7".

No.	Description	Approx. Wt., Lb.	No.	Description	Approx. Wt., Lb.
FA-51	Reversible Ratchet, 7" Long.....	.56	F-117	Extension Bar, 17" Long.....	.89
FA-50	Plug Connector Type Ratchet, 7" Long.....	.50	F-140	Universal Joint.....	.13
FA-50A	Above, less Plug Connector.....	.30	F-3	Screw Driver Socket Attachment; Size of Bit, $\frac{1}{4}$ x.030"; Length, 2".....	.06
F-20A	Sliding T Handle, 8" Long.....	.30	MF-130	Adapter, $\frac{1}{4}$ " Sq. Female, $\frac{3}{8}$ " Sq. Male.....	.03
F-40	Flexible Hinge Handle, 8 $\frac{1}{2}$ " Long; May be Used as Exten.; Drilled for $\frac{5}{16}$ " Sliding Bar..	.56	MF-131	Adapter, $\frac{1}{4}$ " Sq. Male, $\frac{3}{8}$ " Sq. Female.....	.06
F-40B	Sliding Bar, $\frac{5}{16}$ x7"; For No. F-40.....	.38	FS-130	Adapter, $\frac{3}{8}$ " Sq. Female, $\frac{1}{2}$ " Sq. Male.....	.13
F-30	Offset Handle, Knurled Grip, 7 $\frac{3}{4}$ " Long.....	.50	FS-131	Adapter, $\frac{3}{8}$ " Sq. Male, $\frac{1}{2}$ " Sq. Female.....	.13
F-15	Speeder, Knurled Spin Grip, 16 $\frac{1}{2}$ " Long.....	1.06	FM-150	Plug Adapter, $\frac{3}{8}$ " Sq. Male, $\frac{1}{4}$ " Sq. Male...	.18
F-103	Extension Bar, 3" Long.....	.19	FS-151	Plug Adapter, $\frac{3}{8}$ " Sq. Male, $\frac{1}{2}$ " Sq. Male...	.18
F-110	Extension Bar, 6" Long.....	.25	F-150	Plug Connector, $\frac{3}{8}$ " Sq. Male.....	.20
F-115	Extension Bar, 10 $\frac{1}{2}$ " Long.....	.58			



ARMSTRONG ARMALLOY SOCKET WRENCH SETS

Light Series— $\frac{3}{8}$ " Square Drive

Set No. F-10

Contents

Basic set of 10 Pieces: 7 Sockets, 3 Drive Parts.
Complete with Steel Case. Approximate weight, 6 lb.

Sockets

One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches
F-1212	$\frac{3}{8}$	F-1218	$\frac{9}{16}$	F-1224	$\frac{3}{4}$
F-1214	$\frac{7}{16}$	F-1220	$\frac{5}{8}$	.....	.....
F-1216	$\frac{1}{2}$	F-1222	$\frac{11}{16}$	.....	.....

Drive Parts

No. **FA-51**, Reversible Ratchet, 7" Long.
No. **F-40**, Flexible Hinge Handle, $8\frac{1}{2}$ " Long.
No. **F-103**, Extension, 3" Long.



Set No. F-10A

Contents

Basic Set No. F-10 listed above, plus 1 No. 1104C 4-Piece Combination Wrench Set, contents listed below.

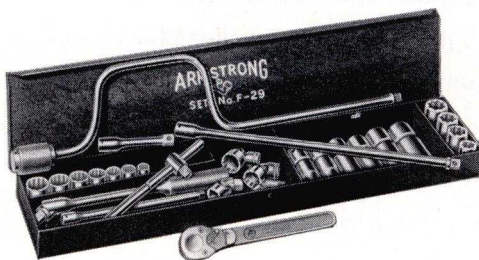
Complete with Steel Case.
Approximate weight, $6\frac{3}{4}$ lb.

Combination Wrenches

One Each No.	Nominal Openings Inches	Length Inches
1161	$\frac{7}{16}$ & $\frac{1}{2}$	5
1162	$\frac{1}{2}$ & $\frac{1}{2}$	$5\frac{1}{4}$
1163	$\frac{9}{16}$ & $\frac{9}{16}$	$5\frac{7}{8}$
1164	$\frac{5}{8}$ & $\frac{5}{8}$	$6\frac{1}{4}$



Set No. F-29



Contents

29 Pieces: 21 Sockets, 8 Drive Parts. Complete with Steel Case. Approximate weight, $9\frac{1}{2}$ lb.

Sockets

One Each No.	Nominal Opening, In.	One Each No.	Nominal Opening, In.	One Each No.	Nominal Opening, In.	One Each No.	Nominal Opening, In.
F-1212	$\frac{3}{8}$	F-1224	$\frac{3}{4}$	FD-1216	$\frac{1}{2}$	F-816	$\frac{1}{2}$
F-1214	$\frac{7}{16}$	FX-1214	$\frac{7}{16}$	FD-1218	$\frac{9}{16}$	F-818	$\frac{9}{16}$
F-1216	$\frac{1}{2}$	FX-1216	$\frac{1}{2}$	FD-1220	$\frac{5}{8}$	F-820	$\frac{5}{8}$
F-1218	$\frac{9}{16}$	FX-1218	$\frac{9}{16}$	FD-1222	$\frac{11}{16}$	.....	.....
F-1220	$\frac{5}{8}$	FX-1220	$\frac{5}{8}$	FD-1224	$\frac{3}{4}$	.....	.....
F-1222	$\frac{11}{16}$	FD-1214	$\frac{7}{16}$	F-814	$\frac{7}{16}$	.....	.....

Drive Parts

No. **FA-51**, Reversible Ratchet, 7" Long.
No. **F-20A**, Sliding T Handle, $6\frac{1}{2}$ " Long.
No. **F-40**, Flex. Hinge Handle, $8\frac{1}{2}$ " Long.

No. **F-15**, Speeder, $16\frac{1}{2}$ " Long.
No. **F-103**, Extension, 3" Long.
No. **F-110**, Extension, 6" Long.

No. **F-115**, Extension, $10\frac{1}{2}$ " Long.
No. **F-140**, Universal Joint.

See chart, page 76, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



ARMSTRONG ARMALLOY SOCKET WRENCH SETS

Light Series— $\frac{3}{8}$ " Square Drive

Set No. F-21

Contents

Basic set of 21 Pieces: 16 Sockets, 5 Drive Parts.
Complete with Steel Case. Approximate weight, 7 lb.

Sockets

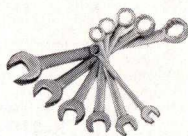
One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches
F-1208	$\frac{1}{4}$	F-1214	$\frac{7}{16}$	F-1222	$\frac{11}{16}$	F-409	$\frac{9}{32}$
F-1210	$\frac{5}{16}$	F-1216	$\frac{1}{2}$	F-1224	$\frac{3}{4}$	F-810	$\frac{5}{16}$
F-1211	$\frac{11}{32}$	F-1218	$\frac{9}{16}$	F-1225	$\frac{25}{32}$	F-812	$\frac{3}{8}$
F-1212	$\frac{3}{8}$	F-1220	$\frac{5}{8}$	F-1226	$\frac{13}{16}$	F-814	$\frac{7}{16}$

Drive Parts

No. FA-51, Reversible Ratchet, 7" Long.
No. F-40, Flexible Hinge Handle, $8\frac{1}{2}$ " Long.
No. F-20A, Sliding T Handle, $6\frac{1}{2}$ " Long.
No. F-103, 3" Extension.
No. F-110, 6" Extension.



Set No. F-21A



Contents

Basic Set No. F-21 shown above, plus 1 No. 1106C 6-Piece Combination Wrench Set, contents listed below.

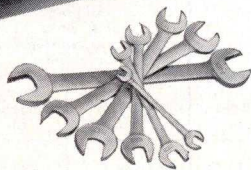
Complete with Steel Case.

Approximate weight, 8 lb.

Combination Wrenches

No.	Nominal Openings Inches	Length Inches
1160	$\frac{3}{8}$ & $\frac{3}{8}$	$4\frac{3}{16}$
1161	$\frac{7}{16}$ & $\frac{7}{16}$	5
1162	$\frac{1}{2}$ & $\frac{1}{2}$	$5\frac{1}{4}$
1163	$\frac{9}{16}$ & $\frac{9}{16}$	$5\frac{7}{8}$
1164	$\frac{5}{8}$ & $\frac{5}{8}$	$6\frac{1}{4}$
1166	$\frac{3}{4}$ & $\frac{3}{4}$	8

Set No. F-21B



Contents

Basic Set No. F-21 shown above, plus 1 No. 6A-26C 6-Piece Engineers' Wrench Set, contents listed below.

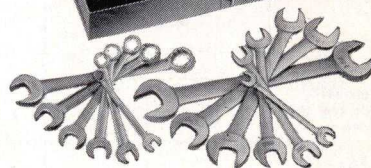
Complete with Steel Case.

Approximate weight, 9 lb.

Engineers' Wrenches

No.	Nominal Openings Inches	Length Inches
1723	$\frac{3}{8}$ & $\frac{7}{16}$	$4\frac{7}{8}$
1025	$\frac{1}{2}$ & $\frac{19}{32}$	$6\frac{1}{8}$
1727	$\frac{9}{16}$ & $\frac{5}{8}$	$6\frac{5}{8}$
1029	$\frac{11}{16}$ & $\frac{25}{32}$	$8\frac{1}{2}$
1731-A	$\frac{3}{4}$ & $\frac{7}{8}$	$9\frac{1}{4}$
1033-C	$\frac{15}{16}$ & 1	$10\frac{7}{8}$

Set No. F-21C



Contents

Basic Set No. F-21, shown above, plus 1 No. 1106C 6-Piece Combination Wrench Set and 1 No. 6A-26C 6-Piece Engineers' Wrench Set, contents listed below.

Complete with Steel Case.

Approximate weight 10 lb.

Combination Wrenches

No.	Nominal Openings Inches
1160	$\frac{3}{8}$ & $\frac{3}{8}$
1161	$\frac{7}{16}$ & $\frac{7}{16}$
1162	$\frac{1}{2}$ & $\frac{1}{2}$
1163	$\frac{9}{16}$ & $\frac{9}{16}$
1164	$\frac{5}{8}$ & $\frac{5}{8}$
1166	$\frac{3}{4}$ & $\frac{3}{4}$

Engineers' Wrenches

No.	Nominal Openings Inches
1723	$\frac{3}{8}$ & $\frac{7}{16}$
1025	$\frac{1}{2}$ & $\frac{19}{32}$
1727	$\frac{9}{16}$ & $\frac{5}{8}$
1029	$\frac{11}{16}$ & $\frac{25}{32}$
1731-A	$\frac{3}{4}$ & $\frac{7}{8}$
1033-C	$\frac{15}{16}$ & 1



ARMSTRONG ARMALLOY SOCKET WRENCHES

Standard Series— $\frac{1}{2}$ " Square Drive

SOCKETS

Made from selected grade alloy steel.

Gauged to accurate limits.

Heat treated and tested to assure maximum strength.

Finished in chrome plate.

Thin head walls enable these sockets to operate with a sure grip in close or obstructed places. In close quarters, the double hexagon opening rotates the nut when the working area is limited to 30°.

Extra Deep Sockets are particularly useful for work on spark plugs, body bolts, U bolts and for service wherever the bolt extends beyond the nut further than usual.

Universal joint Flex Sockets will operate within a range of about 130° angle with any $\frac{1}{2}$ " square drive tool and are indispensable on many jobs in obstructed places.



6-Point
Opening



12-Point
Opening



Extra Deep
12-Point
Opening



Flex
Socket



8-Point
Opening

Nominal Opening' Inches	6-Point Openings		12-Point Openings						8-Point Openings	
			Regular		Extra Deep All Sizes 3¼" Long 7⁄16" Diameter Cross Hole		Flex Sockets			
	No.	Approx. Weight Lb.	No.	Approx. Weight Lb.	No.	Approx. Weight Lb.	No.	Approx. Weight Lb.	No.	Approx. Weight Lb.
5⁄16										
3⁄8	ST-612	.13	ST-1212	.13					S-810	.13
7⁄16	ST-614	.13	ST-1214	.13					S-812	.13
1⁄2	ST-616	.13	ST-1216	.13	SD-1216	.27	SX-1216	.24	S-814	.19
9⁄16	ST-618	.13	ST-1218	.13	SD-1218	.26	SX-1218	.25	S-816	.25
9⁄16			*SF-1218	.13					S-818	.25
19⁄32	ST-619	.13	ST-1219	.13						
5⁄8	ST-620	.19	ST-1220	.19	SD-1220	.26	SX-1220	.26	S-820	.38
21⁄32	ST-621	.14	ST-1221	.14						
11⁄16	ST-622	.19	ST-1222	.19	SD-1222	.26	SX-1222	.27	S-822	.38
3⁄4	ST-624	.19	ST-1224	.19	SD-1224	.37	SX-1224	.29	S-824	.44
25⁄32	ST-625	.25	ST-1225	.25						
13⁄16	ST-626	.25	ST-1226	.25	SD-1226	.37				
7⁄8	ST-628	.25	ST-1228	.25	SD-1228	.45			S-828	.50
7⁄8					†SD-1228 T	.45				
15⁄16	ST-630	.31	ST-1230	.31	SD-1230	.51				
31⁄32	ST-631	.31	ST-1231	.31						
1	ST-632	.31	ST-1232	.31	SD-1232	.52			S-832	.56
11⁄16			ST-1234	.38	SD-1234	.63				
11⁄8			ST-1236	.38	SD-1236	.74				
13⁄16			ST-1238	.44						
11⁄4			ST-1240	.50						

*Special Socket for Ford and Mercury connecting rods.

†No. SD-1228T Extra thin wall not guaranteed.

See chart, page 76, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



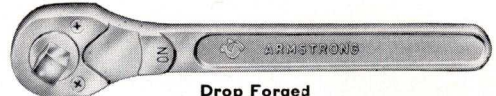
ARMSTRONG ARMALLOY SOCKET WRENCHES

Standard Series— $\frac{1}{2}$ " Square Drive

DRIVE PARTS



Drop Forged
No. SA-51 Reversible Ratchet



Drop Forged
No. SA-50 Plug Connector Type Ratchet



No. S-20A Sliding T Handle



No. S-40 Flexible Hinge Handle



No. S-42B Sliding Bar



Nos. S-102P, S-110P, S-115P, S-121P Extensions



No. S-30 Offset Handle



Nos. S-10 and S-15 Speeders



No. S-140
Universal Joint



Nos. FS-130, SH-130
Adapters



Nos. SB-30, SB-40
Screw Drivers



Nos. FS-151, SH-151
Plug Adapters



No. S-150
Plug Connector

No. SA-51 Reversible Ratchet can be instantly reversed by snapping the reversing lever to position ON or position OFF. This feature is particularly convenient for close quarter operations. The ratchets will rotate the socket where the working arc is limited to only 15° . All parts are made entirely of alloy and high tensile steel, carefully heat treated to maximum strength. Length, $10\frac{1}{2}$ ".

No. SA-50 Plug Connector Type Ratchet—In this style, turning the ratchet over reverses its action. Ratchets are furnished with removable plug connectors. The ratchets will rotate the sockets where the working arc is limited to only 15° . All parts are accurately made of alloy and high tensile steel, heat treated to maximum strength. Finished in chrome plate. Length, $10\frac{1}{2}$ ".

No.	Description	Approx. Wt., Lb.
SA-51	Reversible Ratchet, $10\frac{1}{2}$ " Long.....	1.25
SA-50	Plug Connector Type Ratchet, $10\frac{1}{2}$ " Long.	1.13
SA-50A	Above, less Plug Connector.....	.88
S-20A	Sliding T Handle, 11" Long.....	1.00
*S-40	Flexible Hinge Handle, 12" Long.....	1.50
*S-41	Flexible Hinge Handle, 17" Long.....	2.00
S-42B	Sliding Bar, $\frac{7}{16}$ " Diam. x 9" Long.....	.35
S-30	Offset Handle, 12" Long.....	.88
S-10	Speeder with Knurled Spin Grip, $14\frac{1}{2}$ " Long	1.75
S-15	Speeder with Knurled Spin Grip, $19\frac{1}{2}$ " Long	2.00
S-102P	Extension, $21\frac{1}{2}$ " Long.....	.35

*May be used as an Extension; Knurled Handle has $\frac{7}{16}$ " diameter cross hole for bar.

No.	Description	Approx. Wt., Lb.
S-110P	Extension, $5\frac{1}{4}$ " Long.....	.88
S-115P	Extension, $10\frac{1}{2}$ " Long.....	1.25
S-121P	Extension, 20" Long.....	2.14
S-140	Universal Joint.....	.25
SB-30	Screwdriver, Blade $\frac{7}{64} \times 1\frac{5}{16}$ ".....	.14
SB-40	Screwdriver, Blade $\frac{3}{32} \times 1\frac{1}{4}$ ".....	.16
FS-130	Adapter, $\frac{3}{8}$ " Sq. Female, $\frac{1}{2}$ " Sq. Male....	.13
FS-131	Adapter, $\frac{3}{8}$ " Sq. Male, $\frac{1}{2}$ " Sq. Female....	.13
SH-130	Adapter, $\frac{1}{2}$ " Sq. Female, $\frac{3}{4}$ " Sq. Male....	.25
SH-131	Adapter, $\frac{1}{2}$ " Sq. Male, $\frac{3}{4}$ " Sq. Female....	.25
FS-151	Plug Adapter, $\frac{3}{8}$ " Sq. Male, $\frac{1}{2}$ " Sq. Male..	.25
SH-151	Plug Adapter, $\frac{1}{2}$ " Sq. Male, $\frac{3}{4}$ " Sq. Male..	.30
S-150	Plug Connector, $\frac{1}{2}$ ".....	.25



ARMSTRONG ARMALLOY SOCKET WRENCH SETS

Standard Series— $\frac{1}{2}$ " Square Drive

Set No. S-11

Contents

11 Pieces: 10 Sockets, 1 Drive Part.
Complete with Steel Case. Approximate weight, 5 lb.



Sockets

One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches
ST-1214	$\frac{7}{16}$	ST-1222	$1\frac{1}{16}$
ST-1216	$\frac{1}{2}$	ST-1224	$\frac{3}{4}$
ST-1218	$\frac{9}{16}$	ST-1225	$\frac{25}{32}$
ST-1219	$\frac{19}{32}$	ST-1228	$\frac{7}{8}$
ST-1220	$\frac{5}{8}$	ST-1232	1

Drive Parts

No. S-41, Flexible Hinge Handle, 17" Long.

Set No. S-18

Contents

18 Pieces: 13 Sockets, 5 Drive Parts.
Complete with Steel Case. Approximate weight, 20 $\frac{3}{4}$ lb.



Sockets

One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches
ST-1214	$\frac{7}{16}$	ST-1225	$\frac{25}{32}$
ST-1216	$\frac{1}{2}$	ST-1226	$\frac{13}{16}$
ST-1218	$\frac{9}{16}$	ST-1228	$\frac{7}{8}$
ST-1219	$\frac{19}{32}$	ST-1230	$\frac{15}{16}$
ST-1220	$\frac{5}{8}$	ST-1231	$\frac{31}{32}$
ST-1222	$1\frac{1}{16}$	ST-1232	1
ST-1224	$\frac{3}{4}$		

Drive Parts

No. SA-51, Reversible Ratchet, 10 $\frac{1}{2}$ " Long.
No. S-41, Flexible Hinge Handle, 17" Long.
No. S-20A, Sliding T Handle, 11" Long.
No. S-110P, Extension, 5 $\frac{1}{4}$ " Long.
No. S-115P, Extension, 10 $\frac{1}{2}$ " Long.

Set No. S-12

Contents

12 Pieces: 10 Sockets, 2 Drive Parts.
Complete with Steel Case. Approximate weight, 5.38 lb.



Sockets

One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches
ST-1214	$\frac{7}{16}$	ST-1222	$1\frac{1}{16}$
ST-1216	$\frac{1}{2}$	ST-1224	$\frac{3}{4}$
ST-1218	$\frac{9}{16}$	ST-1225	$\frac{25}{32}$
ST-1219	$\frac{19}{32}$	ST-1228	$\frac{7}{8}$
ST-1220	$\frac{5}{8}$	ST-1232	1

Drive Parts

No. SA-51, Reversible Ratchet, 10 $\frac{1}{2}$ " Long.
No. S-110P, Extension, 5 $\frac{1}{4}$ " Long.

Set No. S-20

Contents

20 Pieces: 13 Sockets, 7 Drive Parts.
Complete with Steel Case. Approximate weight, 23 lb.



Sockets

One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches
ST-1214	$\frac{7}{16}$	ST-1225	$\frac{25}{32}$
ST-1216	$\frac{1}{2}$	ST-1226	$\frac{13}{16}$
ST-1218	$\frac{9}{16}$	ST-1228	$\frac{7}{8}$
ST-1219	$\frac{19}{32}$	ST-1230	$\frac{15}{16}$
ST-1220	$\frac{5}{8}$	ST-1231	$\frac{31}{32}$
ST-1222	$1\frac{1}{16}$	ST-1232	1
ST-1224	$\frac{3}{4}$		

Drive Parts

No. SA-51, Reversible Ratchet, 10 $\frac{1}{2}$ " Long.
No. S-41, Flexible Hinge Handle, 17" Long.
No. S-20A, Sliding T Handle, 11" Long.
No. S-15, Speeder, 19 $\frac{1}{2}$ " Long.
No. S-110P, Extension, 5 $\frac{1}{4}$ " Long.
No. S-115P, Extension, 10 $\frac{1}{2}$ " Long.
No. S-140, Universal Joint.



ARMSTRONG ARMALLOY SOCKET WRENCH SETS

Standard Series— $\frac{1}{2}$ " Square Drive

Set No. S-22

Contents

Basic Set of 22 Pieces: 16 Sockets, 6 Drive Parts.
Complete with Steel Case. Approximate weight, 11.5 lb.

Sockets

One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches
ST-1214	$\frac{7}{16}$	ST-1220	$\frac{5}{8}$	ST-1226	$\frac{13}{16}$	S-812	$\frac{3}{8}$
ST-1216	$\frac{1}{2}$	ST-1222	$\frac{11}{16}$	ST-1228	$\frac{7}{8}$	S-816	$\frac{1}{2}$
ST-1218	$\frac{9}{16}$	ST-1224	$\frac{3}{4}$	ST-1230	$\frac{15}{16}$	S-820	$\frac{5}{8}$
ST-1219	$\frac{19}{32}$	ST-1225	$\frac{25}{32}$	ST-1232	1	S-824	$\frac{3}{4}$

Drive Parts

No. SA-51, Reversible Ratchet, $10\frac{1}{2}$ " Long.
No. S-20A, Sliding T Handle, 11" Long.
No. S-40, Flexible Hinge Handle, 12" Long.
No. S-102P, Extension, $2\frac{1}{2}$ " Long.
No. S-110P, Extension, $5\frac{1}{4}$ " Long.
No. S-140, Universal Joint.



Set No. S-22A



Contents

Basic Set No. S-22, shown above, plus 1 No. 1108C, 8-Piece Combination Wrench Set, contents listed below.

Complete with Steel Case.
Approximate weight, 12.6 lb.

Combination Wrenches

One Each No.	Nominal Openings Inches
1160	$\frac{3}{8}$ & $\frac{3}{8}$
1161	$\frac{7}{16}$ & $\frac{7}{16}$
1162	$\frac{1}{2}$ & $\frac{1}{2}$
1163	$\frac{9}{16}$ & $\frac{9}{16}$
1164	$\frac{5}{8}$ & $\frac{5}{8}$
1165	$\frac{11}{16}$ & $\frac{11}{16}$
1166	$\frac{3}{4}$ & $\frac{3}{4}$
1167	$\frac{7}{8}$ & $\frac{7}{8}$

Set No. S-22B



Contents

Basic Set No. S-22, shown above, plus 1 No. 6A-26C, 6-Piece Engineers' Wrench Set, contents listed below.

Complete with Steel Case.
Approximate weight, 13.5 lb.

Engineers' Wrenches

One Each No.	Nominal Openings Inches
1723	$\frac{3}{8}$ & $\frac{7}{16}$
1025	$\frac{1}{2}$ & $\frac{19}{32}$
1727	$\frac{9}{16}$ & $\frac{5}{8}$
1029	$\frac{11}{16}$ & $\frac{25}{32}$
1731-A	$\frac{3}{4}$ & $\frac{7}{8}$
1033-C	$\frac{15}{16}$ & 1
.....
.....

Set No. S-22C



Contents

Basic Set No. S-22, shown above, plus 1 No. 1108C 8-Piece Combination Wrench Set and 1 No. 6A-26C 6-Piece Engineers' Wrench Set, contents listed below.

Complete with Steel Case.
Approximate weight, 14.6 lb.

Combination Wrenches

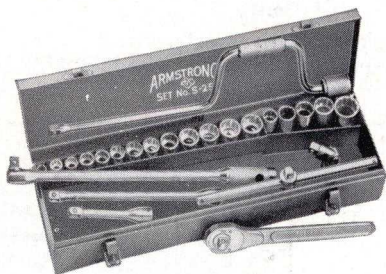
One Each No.	Nominal Openings Inches	One Each No.	Nominal Openings Inches
1160	$\frac{3}{8}$ & $\frac{3}{8}$	1723	$\frac{3}{8}$ & $\frac{7}{16}$
1161	$\frac{7}{16}$ & $\frac{7}{16}$	1025	$\frac{1}{2}$ & $\frac{19}{32}$
1162	$\frac{1}{2}$ & $\frac{1}{2}$	1727	$\frac{9}{16}$ & $\frac{5}{8}$
1163	$\frac{9}{16}$ & $\frac{9}{16}$	1029	$\frac{11}{16}$ & $\frac{25}{32}$
1164	$\frac{5}{8}$ & $\frac{5}{8}$	1731-A	$\frac{3}{4}$ & $\frac{7}{8}$
1165	$\frac{11}{16}$ & $\frac{11}{16}$	1033-C	$\frac{15}{16}$ & 1
1166	$\frac{3}{4}$ & $\frac{3}{4}$	.....	.....
1167	$\frac{7}{8}$ & $\frac{7}{8}$	.....	.....



ARMSTRONG ARMALLOY SOCKET WRENCH SETS

Standard Series— $\frac{1}{2}$ " Square Drive

Set No. S-25



Contents

25 Pieces: 18 Sockets, 7 Drive Parts.
Complete with Steel Case. Approximate weight, $25\frac{1}{2}$ lb.

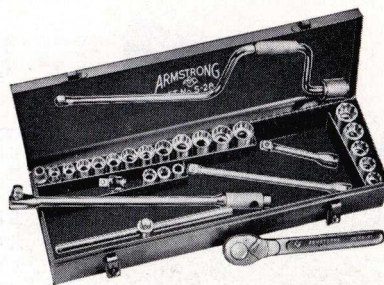
Sockets

One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches
ST-1214	$\frac{7}{16}$	ST-1228	$\frac{7}{8}$
ST-1216	$\frac{1}{2}$	ST-1230	$\frac{13}{16}$
ST-1218	$\frac{9}{16}$	ST-1231	$\frac{31}{32}$
ST-1219	$\frac{19}{32}$	ST-1232	1
ST-1220	$\frac{5}{8}$	SD-1222	$\frac{11}{16}$
ST-1222	$\frac{11}{16}$	SD-1226	$\frac{13}{16}$
ST-1224	$\frac{3}{4}$	SD-1228	$\frac{7}{8}$
ST-1225	$\frac{25}{32}$	SD-1230	$\frac{15}{16}$
ST-1226	$\frac{13}{16}$	SD-1236	$1\frac{1}{8}$

Drive Parts

No. SA-51, Reversible Ratchet, $10\frac{1}{2}$ ".
No. S-41, Flexible Hinge Handle, 17".
No. S-20A, Sliding T Handle, 11".
No. S-15, Speeder, $19\frac{1}{2}$ ".
No. S-110P, Extension, $5\frac{1}{4}$ ".
No. S-115P, Extension, $10\frac{1}{2}$ ".
No. S-140, Universal Joint.

Set No. S-28



Contents

28 Pieces: 21 Sockets, 7 Drive Parts.
Complete with Steel Case. Approximate weight, $25\frac{1}{2}$ lb.

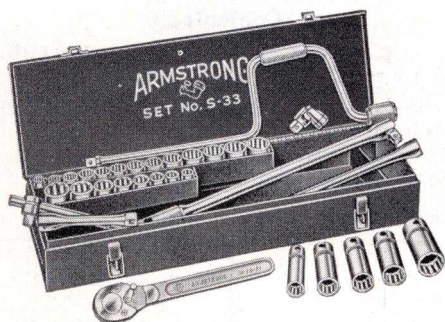
Sockets

One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches
ST-1214	$\frac{7}{16}$	ST-1231	$\frac{31}{32}$
ST-1216	$\frac{1}{2}$	ST-1232	1
ST-1218	$\frac{9}{16}$	S-812	$\frac{3}{8}$
ST-1219	$\frac{19}{32}$	S-814	$\frac{7}{16}$
ST-1220	$\frac{5}{8}$	S-816	$\frac{1}{2}$
ST-1222	$\frac{11}{16}$	S-818	$\frac{9}{16}$
ST-1224	$\frac{3}{4}$	S-820	$\frac{5}{8}$
ST-1225	$\frac{25}{32}$	S-822	$\frac{11}{16}$
ST-1226	$\frac{13}{16}$	S-824	$\frac{3}{4}$
ST-1228	$\frac{7}{8}$	S-828	$\frac{7}{8}$
ST-1230	$\frac{15}{16}$	...	...

Drive Parts

No. SA-51, Reversible Ratchet, $10\frac{1}{2}$ ".
No. S-41, Flexible Hinge Handle, 17".
No. S-20A, Sliding T Handle, 11".
No. S-15, Speeder, $19\frac{1}{2}$ ".
No. S-110P, Extension, $5\frac{1}{4}$ ".
No. S-115P, Extension, $10\frac{1}{2}$ ".
No. S-140, Universal Joint.

Set No. S-33



Contents

33 Pieces: 26 Sockets, 7 Drive Parts.
Complete with Steel Case.
Approximate weight, $27\frac{1}{4}$ lb.

Sockets

One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches
ST-1214	$\frac{7}{16}$	ST-1228	$\frac{7}{8}$	S-822	$\frac{11}{16}$
ST-1216	$\frac{1}{2}$	ST-1230	$\frac{13}{16}$	S-824	$\frac{3}{4}$
ST-1218	$\frac{9}{16}$	ST-1231	$\frac{31}{32}$	S-828	$\frac{7}{8}$
ST-1219	$\frac{19}{32}$	ST-1232	1	SD-1222	$\frac{11}{16}$
ST-1220	$\frac{5}{8}$	S-812	$\frac{3}{8}$	SD-1226	$\frac{13}{16}$
ST-1222	$\frac{11}{16}$	S-814	$\frac{7}{16}$	SD-1228	$\frac{7}{8}$
ST-1224	$\frac{3}{4}$	S-816	$\frac{1}{2}$	SD-1230	$\frac{15}{16}$
ST-1225	$\frac{25}{32}$	S-818	$\frac{9}{16}$	SD-1236	$1\frac{1}{8}$
ST-1226	$\frac{13}{16}$	S-820	$\frac{5}{8}$	.....	...

Drive Parts

No. SA-51, Reversible Ratchet, $10\frac{1}{2}$ " Long.
No. S-41, Flexible Hinge Handle, 17" Long.
No. S-20A, Sliding T Handle, 11" Long.
No. S-15, Speeder, $19\frac{1}{2}$ " Long.
No. S-110P, Extension, $5\frac{1}{4}$ " Long.
No. S-115P, Extension, $10\frac{1}{2}$ " Long.
No. S-140, Universal Joint.



ARMSTRONG ARMALLOY SOCKET WRENCH SETS

Standard and Heavy Duty Series

Set No. S-H-36

Contents

Basic Set of 36 Pieces: 21 Sockets, 15 Drive Parts.

Complete with Steel Case.

Approximate weight, 43.5 lb.



Standard Series— $\frac{1}{2}$ " Square Drive

Sockets

One Each No.	Nominal Open, In.	One Each No.	Nominal Open, In.	One Each No.	Nominal Open, In.
ST-1214	$\frac{7}{16}$	ST-1222	$\frac{11}{16}$	ST-1230	$\frac{15}{16}$
ST-1216	$\frac{1}{2}$	ST-1224	$\frac{3}{4}$	ST-1231	$\frac{31}{32}$
ST-1218	$\frac{9}{16}$	ST-1225	$\frac{25}{32}$	ST-1232	1
ST-1219	$\frac{19}{32}$	ST-1226	$\frac{13}{16}$	.....	...
ST-1220	$\frac{5}{8}$	ST-1228	$\frac{7}{8}$	.....	...

Drive Parts

No. SA-51, Reversible Ratchet, $10\frac{1}{2}$ ".

No. S-41, Flexible Hinge Handle, 17".

No. S-20A, Sliding T Handle, 11".

No. S-15, Speeder, $19\frac{1}{2}$ " Long.

No. S-110P, Extension, $5\frac{1}{4}$ " Long.

No. S-115P, Exten., $10\frac{1}{2}$ " Long.

No. S-140, Universal Joint.

No. SH-130, Adapter, $\frac{1}{2}$ " Sq. Female, $\frac{3}{4}$ " Sq. Male.

Heavy Duty Series— $\frac{3}{4}$ " Square Drive

Sockets

One Each No.	Nominal Open, In.	One Each No.	Nominal Open, In.	One Each No.	Nominal Open, In.
H-1234	$\frac{11}{16}$	H-1242	$\frac{15}{16}$	H-1248	$1\frac{1}{2}$
H-1236	$\frac{13}{8}$	H-1244	$\frac{13}{8}$	H-1252	$1\frac{5}{8}$
H-1240	$1\frac{1}{4}$	H-1246	$1\frac{7}{16}$	.....	...

Drive Parts

No. HA-51, Reversible Ratchet, 19" Long.

No. H-20A, Sliding T Handle, $17\frac{1}{2}$ " Long.

No. H-41, Flexible Hinge Handle, 22" Long.

No. H-110, Extension, 8" Long.

No. H-115, Extension, $15\frac{1}{2}$ " Long.

No. H-140, Universal Joint.

No. SH-131, Adapter, $\frac{1}{2}$ " Sq. Male, $\frac{3}{4}$ " Sq. Female.

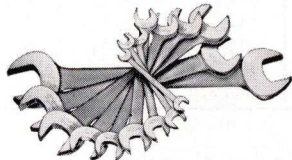
Set No. S-H-36A

Contents

45 Pieces: 21 Sockets, 15 Drive Parts, as listed in Set No. S-H-36 above, plus 1 No. 9A-38C 9-Piece Engineers' Wrench Set, illustrated and listed below.

Complete in Steel Case.

Approximate weight, 53 lb.



Engineers' Wrenches

One Each No.	Nom. Opening Inches	Lgth. In.
1723	$\frac{3}{8}$ & $\frac{7}{16}$	$4\frac{7}{8}$
1025	$\frac{1}{2}$ & $\frac{19}{32}$	$6\frac{1}{8}$
1727	$\frac{9}{16}$ & $\frac{5}{8}$	$6\frac{5}{8}$
1029	$\frac{11}{16}$ & $\frac{25}{32}$	$8\frac{1}{2}$
1731-A	$\frac{3}{4}$ & $\frac{7}{8}$	$9\frac{1}{4}$
1033-C	$\frac{15}{16}$ & 1	$10\frac{7}{8}$
1037	$\frac{11}{16}$ & $1\frac{1}{4}$	$12\frac{3}{4}$
1037-A	$\frac{11}{8}$ & $\frac{15}{16}$	$12\frac{3}{4}$
1041	$\frac{17}{16}$ & $1\frac{5}{8}$	$15\frac{3}{4}$
....
....
....

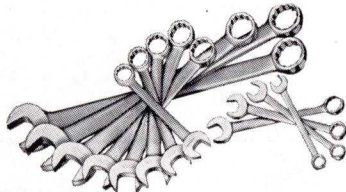
Set No. S-H-36B

Contents

48 Pieces: 21 Sockets, 15 Drive Parts, as listed in Set No. S-H-36 above, plus 1 No. 1112C 12-Piece Combination Wrench Set, illustrated and listed below.

Complete in Steel Case.

Approximate weight, 49 lb.



Combination Wrenches

One Each No.	Nom. Opening Inches	Lgth. In.
1160	$\frac{3}{8}$ & $\frac{3}{8}$	$4\frac{3}{16}$
1161	$\frac{1}{2}$ & $\frac{7}{16}$	5
1162	$\frac{1}{2}$ & $\frac{1}{2}$	$5\frac{1}{4}$
1163	$\frac{9}{16}$ & $\frac{9}{16}$	$5\frac{7}{8}$
1163-A	$\frac{19}{32}$ & $\frac{19}{32}$	$5\frac{7}{8}$
1164	$\frac{5}{8}$ & $\frac{5}{8}$	$6\frac{1}{4}$
1165	$\frac{11}{16}$ & $1\frac{1}{16}$	7
1166	$\frac{3}{4}$ & $\frac{3}{4}$	8
1166-A	$\frac{25}{32}$ & $\frac{25}{32}$	8
1167	$\frac{7}{8}$ & $\frac{7}{8}$	$10\frac{1}{2}$
1168	$\frac{15}{16}$ & $\frac{15}{16}$	13
1170	1 & 1	13

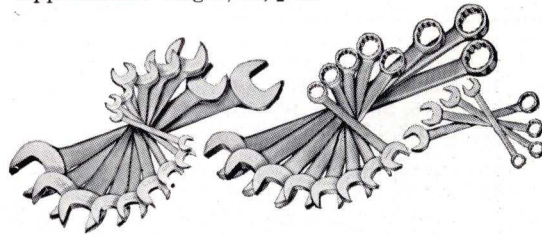
Set No. S-H-36C

Contents

57 Pieces: 21 Sockets, 15 Drive Parts, as listed in Set No. S-H-36 above, plus 1 No. 9A-38C 9-Piece Engineers' Wrench Set and 1 No. 1112C 12-Piece Combination Wrench Set, illustrated and listed below.

Complete in Steel Case.

Approximate weight, $58\frac{1}{2}$ lb.



Engineers' Wrenches

Combination Wrenches

One Each No.	Nom. Open. Inches	Lgth. In.	One Each No.	Nom. Open. Inches	Lgth. In.
1723	$\frac{3}{8}$ & $\frac{7}{16}$	$4\frac{7}{8}$	1160	$\frac{3}{8}$ & $\frac{3}{8}$	$4\frac{3}{16}$
1025	$\frac{1}{2}$ & $\frac{19}{32}$	$6\frac{1}{8}$	1161	$\frac{1}{2}$ & $\frac{7}{16}$	5
1727	$\frac{9}{16}$ & $\frac{5}{8}$	$6\frac{5}{8}$	1162	$\frac{1}{2}$ & $\frac{1}{2}$	$5\frac{1}{4}$
1029	$\frac{11}{16}$ & $\frac{25}{32}$	$8\frac{1}{2}$	1163	$\frac{9}{16}$ & $\frac{9}{16}$	$5\frac{7}{8}$
1731-A	$\frac{3}{4}$ & $\frac{7}{8}$	$9\frac{1}{4}$	1163-A	$\frac{19}{32}$ & $\frac{19}{32}$	$5\frac{7}{8}$
1033-C	$\frac{15}{16}$ & 1	$10\frac{7}{8}$	1164	$\frac{5}{8}$ & $\frac{5}{8}$	$6\frac{1}{4}$
1037	$\frac{11}{16}$ & $1\frac{1}{4}$	$12\frac{3}{4}$	1165	$\frac{11}{16}$ & $1\frac{1}{16}$	7
1037-A	$\frac{11}{8}$ & $\frac{15}{16}$	$12\frac{3}{4}$	1166	$\frac{3}{4}$ & $\frac{3}{4}$	8
1041	$\frac{17}{16}$ & $1\frac{5}{8}$	$15\frac{3}{4}$	1166-A	$\frac{25}{32}$ & $\frac{25}{32}$	8
....	.....	....	1167	$\frac{7}{8}$ & $\frac{7}{8}$	$10\frac{1}{2}$
....	.....	....	1168	$\frac{15}{16}$ & $\frac{15}{16}$	13
....	.....	....	1170	1 & 1	13



ARMSTRONG ARMALLOY SOCKET WRENCH SET

MASTER MECHANICS' SET NO. NM-H-106—COMPLETE ASSORTMENT

A carefully selected assortment of $\frac{1}{4}$ ", $\frac{3}{8}$ ", $\frac{1}{2}$ " and $\frac{3}{4}$ " Square Drive ARMSTRONG Armalloy Sockets and Drive Parts together with Engineers' Wrenches, Combination Wrenches, Box Socket Wrenches and Pliers. Included are all required openings from $\frac{3}{16}$ to $1\frac{5}{8}$ ".

Contents

106 Pieces: 44 Sockets, 30 Drive Parts, 30 Wrenches, 2 Pliers. Complete in Steel Case. Approx. weight, 85 lb.



$\frac{1}{4}$ " Square Drive

One Each No.	Nominal Open., In.	One Each No.	Nominal Open., In.	One Each No.	Nominal Open., In.
NM-606	$\frac{3}{16}$	NM-609	$\frac{9}{32}$	NM-1212	$\frac{3}{8}$
NM-607	$\frac{7}{32}$	NM-1210	$\frac{5}{16}$	NM-1214	$\frac{7}{16}$
NM-608	$\frac{1}{4}$	NM-1211	$\frac{11}{32}$	.....	..

No. **NMA-51**, Reversible Ratchet, $4\frac{1}{2}$ " Long.
No. **NM-20A**, Sliding T Handle, $4\frac{1}{2}$ " Long.
No. **NM-106**, Shock-Proof Handle, 6" Long.

$\frac{3}{8}$ " Square Drive

One Each No.	Nominal Open., In.	One Each No.	Nominal Open., In.	One Each No.	Nominal Open., In.
F-1212	$\frac{3}{8}$	F-1216	$\frac{1}{2}$	F-1222	$1\frac{1}{16}$
F-1214	$\frac{7}{16}$	F-1218	$\frac{9}{16}$	F-1224	$\frac{3}{4}$
.....	..	F-1220	$\frac{5}{8}$	.....	..

No. **FA-51**, Reversible Ratchet, 7" Long.
No. **F-20A**, Sliding T Handle, $6\frac{1}{2}$ " Long.
No. **F-40**, Flexible Hinge Handle, $8\frac{1}{2}$ " Long.
No. **F-15**, Speeder, $16\frac{1}{2}$ " Long.
No. **F-103**, 3" Extension.
No. **F-110**, 6" Extension.
No. **F-115**, $10\frac{1}{2}$ " Extension.
No. **F-140**, Universal Joint.
No. **FS-130**, Adapter, $\frac{3}{8}$ " Sq. Female, $\frac{1}{2}$ " Sq. Male.
No. **FP-2**, Phillips Screw Driver Attachment
No. 2 Drive Fits No. 5-9 Screws.
No. **FP-3**, Phillips Screw Driver Attachment
No. 3 Drive Fits No. 10-16 Screws.

$\frac{1}{2}$ " Square Drive

One Each No.	Nominal Open., In.	One Each No.	Nominal Open., In.	One Each No.	Nominal Open., In.
ST-1214	$\frac{7}{16}$	ST-1225	$2\frac{5}{32}$	SD-1226	$1\frac{3}{16}$
ST-1216	$\frac{1}{2}$	ST-1226	$\frac{13}{16}$	SD-1228	$\frac{7}{8}$
ST-1218	$\frac{9}{16}$	ST-1228	$\frac{7}{8}$	SD-1232	1
ST-1219	$\frac{19}{32}$	ST-1230	$\frac{15}{16}$	S-814	$\frac{7}{16}$
ST-1220	$\frac{5}{8}$	ST-1231	$\frac{31}{32}$	S-816	$\frac{1}{2}$
ST-1222	$\frac{11}{16}$	ST-1232	1	S-818	$\frac{9}{16}$
ST-1224	$\frac{3}{4}$	SD-1222	$\frac{11}{16}$	S-820	$\frac{5}{8}$

$\frac{1}{2}$ " Square Drive

No. **SA-51**, Reversible Ratchet, $10\frac{1}{2}$ " Long.
No. **S-20A**, Sliding T Handle, 11" Long.
No. **S-41**, Flexible Hinge Handle, 17" Long.
No. **S-15**, Speeder, $19\frac{1}{2}$ " Long.
No. **S-102P**, $2\frac{1}{2}$ " Extension.
No. **S-110P**, $5\frac{1}{4}$ " Extension.
No. **S-115P**, $10\frac{1}{2}$ " Extension.
No. **S-140**, Universal Joint.
No. **SB-30**, Screw Driver Blade, $1\frac{5}{16}$ " Wide; $\frac{7}{64}$ " Thick.

$\frac{3}{4}$ " Square Drive

One Each No.	Nominal Open., In.	One Each No.	Nominal Open., In.	One Each No.	Nominal Open., In.
H-1234	$1\frac{1}{16}$	H-1242	$1\frac{5}{16}$	H-1248	$1\frac{1}{2}$
H-1236	$1\frac{1}{8}$	H-1244	$1\frac{3}{8}$	H-1252	$1\frac{5}{8}$
H-1240	$1\frac{1}{4}$	H-1246	$1\frac{7}{16}$	.....	...

No. **HA-51**, Reversible Ratchet, 19" Long.
No. **H-20A**, Sliding T Handle, $17\frac{1}{2}$ " Long.
No. **H-41**, Flexible Hinge Handle, 22" Long.
No. **H-104**, 4" Extension.
No. **H-110**, 8" Extension.
No. **H-115**, $15\frac{1}{2}$ " Extension.
No. **H-140**, Universal Joint.

Armaly Double Head Engineers' Wrenches

One Each No.	Nominal Open., In.	Lgth. In.	One Each No.	Nominal Open., In.	Lgth. In.
1723	$\frac{3}{8}$ & $\frac{7}{16}$	$4\frac{7}{8}$	1033-C	$1\frac{5}{16}$ & 1	$10\frac{7}{8}$
1025	$\frac{1}{2}$ & $1\frac{1}{8}$	$6\frac{1}{8}$	1037	$1\frac{1}{16}$ & $1\frac{1}{4}$	$12\frac{3}{4}$
1727	$\frac{9}{16}$ & $\frac{5}{8}$	$6\frac{5}{8}$	1037-A	$1\frac{1}{8}$ & $1\frac{3}{16}$	$12\frac{3}{4}$
1029	$1\frac{1}{16}$ & $2\frac{5}{32}$	$8\frac{1}{2}$	1041	$1\frac{7}{16}$ & $1\frac{5}{8}$	$15\frac{3}{4}$
1731-A	$\frac{3}{4}$ & $\frac{7}{8}$	$9\frac{1}{4}$	.....	.....	....

Armaly Combination Wrenches

One Each No.	Nominal Open., In.	Lgth. In.	One Each No.	Nominal Open., In.	Lgth. In.
1157	$\frac{7}{32}$ & $\frac{7}{32}$	3	1162	$\frac{1}{2}$ & $\frac{1}{2}$	$5\frac{1}{4}$
1158	$\frac{1}{4}$ & $\frac{1}{4}$	3	1163	$\frac{9}{16}$ & $\frac{9}{16}$	$5\frac{7}{8}$
1158-A	$\frac{9}{32}$ & $\frac{9}{32}$	$3\frac{1}{2}$	1164	$\frac{5}{8}$ & $\frac{5}{8}$	$6\frac{1}{4}$
1159	$\frac{5}{16}$ & $\frac{5}{16}$	$3\frac{1}{2}$	1165	$\frac{11}{16}$ & $\frac{11}{16}$	7
1159-A	$\frac{11}{32}$ & $\frac{11}{32}$	$4\frac{3}{16}$	1166	$\frac{3}{4}$ & $\frac{3}{4}$	8
1160	$\frac{3}{8}$ & $\frac{3}{8}$	$4\frac{3}{16}$	1167	$\frac{7}{8}$ & $\frac{7}{8}$	$10\frac{1}{2}$
1161	$\frac{7}{16}$ & $\frac{7}{16}$	5	.....	.....	...

Armaly Box Socket Wrenches

15° Angle Offset Long Pattern			45° Angle, Double Offset Short Pattern		
One Each No.	Nominal Open., In.	Lgth. In.	One Each No.	Nominal Open., In.	Lgth. In.
7723	$\frac{3}{8}$ & $\frac{7}{16}$	$7\frac{3}{8}$	9723	$\frac{3}{8}$ & $\frac{7}{16}$	$4\frac{1}{2}$
7025	$\frac{1}{2}$ & $1\frac{1}{8}$	$8\frac{1}{4}$	9725	$\frac{7}{16}$ & $\frac{1}{2}$	$5\frac{1}{2}$
7727	$\frac{9}{16}$ & $\frac{5}{8}$	$9\frac{1}{4}$	9727	$\frac{9}{16}$ & $\frac{5}{8}$	6
7731-A	$\frac{3}{4}$ & $\frac{7}{8}$	12	.....	.....	...
7033-C	$1\frac{1}{16}$ & 1	$13\frac{3}{4}$	.....	.....	...

Pliers

No. 1519, $4\frac{1}{2}$ " Length, 4-Position Slip-Joint.
No. 1520, $9\frac{1}{2}$ " Length, 8-Position Slip-Joint.

See chart, page 76, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



ARMSTRONG ARMALLOY REFLEX TORQUE WRENCHES

With Foot-Pound and Inch-Pound Dials



ARMSTRONG Armaloy Reflex Torque Wrenches are available in three standard drive sizes: $\frac{3}{8}$ ", $\frac{1}{2}$ " and $\frac{3}{4}$ " and are calibrated in either inch pounds or foot pounds.

The ARMSTRONG Reflex Torque Wrench was developed to enable any operator to tighten nuts, screws, and threaded parts to any predetermined torque by sight, sound and feeling—all three simultaneously or by any one individually—to control torque:

1. With Laboratory Accuracy,
2. At Production Line Speed,
3. Automatically and with less fatigue.

The signal mechanism which is built into the yoke and handle of the wrench, sounds a loud and distinct click, also imparts a definite strong impulse to the hand. This mechanism works by the same force used by the operator to generate the desired torque.

Because of its "Automatic" accuracy and wide application, the ARMSTRONG Reflex Torque Wrench permits a far greater degree of product control with the resulting reduction in rejects, spoilage and product failures in the field.

Each wrench is individually boxed.

Foot-Pounds

No.	Torque Capacity, Foot-Pounds	Drive Square, Inches	Overall Length, Inches	Approximate Weight, Lb.
FR25	0 to 25	$\frac{3}{8}$	16	2.75
SR25	0 to 25	$\frac{1}{2}$	16	2.75
FR50	0 to 50	$\frac{3}{8}$	16	2.75
SR50	0 to 50	$\frac{1}{2}$	16	2.75
SR100	0 to 100	$\frac{1}{2}$	$17\frac{1}{2}$	2.75
SR150	0 to 150	$\frac{1}{2}$	$20\frac{9}{16}$	3.75
HR200	0 to 200	$\frac{3}{4}$	$28\frac{5}{8}$	7.75
HR300	0 to 300	$\frac{3}{4}$	$34\frac{3}{4}$	10.75

Inch-Pounds

No.	Torque Capacity, Inch-Pounds	Drive Square, Inches	Overall Length, Inches	Approximate Weight, Lb.
FR 300-I	0 to 300	$\frac{3}{8}$	16	2.75
SR 300-I	0 to 300	$\frac{1}{2}$	16	2.75
FR 600-I	0 to 600	$\frac{3}{8}$	16	2.75
SR 600-I	0 to 600	$\frac{1}{2}$	16	2.75
SR1200-I	0 to 1200	$\frac{1}{2}$	$17\frac{1}{2}$	2.75
SR1800-I	0 to 1800	$\frac{1}{2}$	$20\frac{9}{16}$	3.75
HR2400-I	0 to 2400	$\frac{3}{4}$	$28\frac{5}{8}$	7.75
HR3600-I	0 to 3600	$\frac{3}{4}$	$34\frac{3}{4}$	10.75



ARMSTRONG ARMALLOY SOCKET WRENCHES

Heavy Duty Series— $\frac{3}{4}$ " Square Drive

SOCKETS

Made from selected alloy steel.
Gauged to accurate limits.
Heat treated and tested to assure maximum strength.
Finished in chrome plate.



12-Point
Opening



Extra Deep
12-Point
Opening

These sockets are designed for heavy duty service where reliable strength without unnecessary weight is required.

Extra deep sockets are used on heavy U bolts on trucks and busses and on other jobs where bolt protrudes beyond nut farther than usual.

Double Hexagon (12-Point) Openings

Nominal Opening Inches	Regular Sockets		Extra Deep Sockets Cross Hole for $\frac{3}{4}$ " Bar	
	No.	Approx. Wt., Lb.	No.	Approx. Wt., Lb.
$\frac{7}{8}$	H-1228	.31	.....	....
$\frac{15}{16}$	H-1230	.31	HD-1230	.75
$\frac{31}{32}$	H-1231	.38	.....	....
1	H-1232	.38	.....	....
$1\frac{1}{16}$	H-1234	.50	HD-1234	.75
$1\frac{1}{8}$	H-1236	.50	.....	....
$1\frac{3}{16}$	H-1238	.63	.....	....
$1\frac{1}{4}$	H-1240	.75	HD-1240	1.25
$1\frac{5}{16}$	H-1242	.75	.....	....
$1\frac{3}{8}$	H-1244	.88	.....	....
$1\frac{7}{16}$	H-1246	.88	HD-1246	1.63
$1\frac{1}{2}$	H-1248	1.00	.....	....
$1\frac{9}{16}$	H-1250	1.00	.....	....
$1\frac{5}{8}$	H-1252	1.00	.....	....
$1\frac{11}{16}$	H-1254	1.00	.....	....
$1\frac{3}{4}$	H-1256	1.25	.....	....
$1\frac{13}{16}$	H-1258	1.25	.....	....
$1\frac{7}{8}$	H-1260	1.25	.....	....
2	H-1264	1.38	.....	....
$2\frac{1}{16}$	H-1266	1.38	.....	....
$2\frac{1}{8}$	H-1268	1.50	.....	....
$2\frac{3}{16}$	H-1270	1.50	.....	....
$2\frac{1}{4}$	H-1272	1.75	.....	....

DRIVE PARTS



No. HA-51 Reversible Ratchet, Drop Forged



No. H-20A Sliding T Handle



No. H-41B Sliding Bar



Nos. H-104, H-110 and H-115 Extensions



No. H-140
Universal Joint



No. HA-50 Plug Connector Type Ratchet, Drop Forged



No. H-41 Flexible Hinge Handle



No. HX-130
Adapter



No. SH-151
Plug Adapter



No. H-150
Plug Connector

No. HA-51 Reversible Ratchet can be instantly reversed by snapping the reversing lever to position ON or position OFF. This feature is particularly convenient for close quarter operations. The ratchets will rotate the socket where the working arc is limited to only 15°. All parts are made entirely of alloy and high tensile steel, carefully heat treated to maximum strength. Length 19".

No. HA-50 Plug Connector Type Ratchet—In this style, turning the ratchet over reverses its action. Ratchets furnished with removable plug connectors. Ratchets will rotate sockets where working arc is limited to only 15°. All parts of alloy and high tensile steel, heat treated to maximum strength. Finished in chrome plate. Length, 19".

No.	Description	Approx. Wt., Lb.
HA-51	Reversible Ratchet, 19 Long.....	5.00
HA-50	Plug Connector Type Ratchet, 19" long.	5.30
HA-50A	Above, less Plug Connector.....	5.05
H-20A	Sliding T Handle, 17 $\frac{1}{2}$ " Long.....	2.75
H-41	Flexible Hinge Handle, 22" Long. Has $\frac{3}{4}$ " Cross Hole for Bar.....	3.25
H-41B	Sliding Bar, $\frac{3}{4}$ x16"; For No. H-41....	4.4
H-104	Extension, 4" Long.....	.88
H-110	Extension, 8" Long.....	1.50

No.	Description	Approx. Wt., Lb.
H-115	Extension, 15 $\frac{1}{2}$ " Long.....	2.75
H-140	Universal Joint.....	1.13
SH-130	Adapter, $\frac{1}{2}$ " Sq. Female, $\frac{3}{4}$ " Sq. Male...	.25
SH-131	Adapter, $\frac{1}{2}$ " Sq. Male, $\frac{3}{4}$ " Sq. Female...	.25
HX-130	Adapter, $\frac{3}{4}$ " Sq. Female, 1" Sq. Male....	.59
HX-131	Adapter, $\frac{3}{4}$ " Sq. Male, 1" Sq. Female....	.59
SH-151	Plug Adapter, $\frac{1}{2}$ " Sq. Male, $\frac{3}{4}$ " Sq. Male	.30
HX-151	Plug Adapter, $\frac{3}{4}$ " Sq. Male, 1" Sq. Male.	.40
H-150	Plug Connector, $\frac{3}{4}$ " Square.....	.25

See chart, page 76, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



ARMSTRONG ARMALLOY SOCKET WRENCH SETS

Heavy Duty Series— $\frac{3}{4}$ " Square Drive

Set No. H-13



Contents

13 Pieces: 10 Sockets, 3 Drive Parts.
Complete with Steel Case. Approx. weight, 22 $\frac{1}{4}$ lb.

Sockets

One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches
H-1234	1 $\frac{1}{16}$	H-1242	1 $\frac{3}{16}$	H-1252	1 $\frac{5}{8}$
H-1236	1 $\frac{1}{8}$	H-1244	1 $\frac{3}{8}$	H-1256	1 $\frac{3}{4}$
H-1238	1 $\frac{3}{16}$	H-1246	1 $\frac{7}{16}$	.....	...
H-1240	1 $\frac{1}{4}$	H-1248	1 $\frac{1}{2}$	.....	...

Drive Parts

No. H-20A, Sliding T Handle, 17 $\frac{1}{2}$ " Long.
No. H-110, Extension, 8" Long.
No. H-115, Extension, 15 $\frac{1}{2}$ " Long.

Set No. H-15



Contents

15 Pieces: 10 Sockets, 5 Drive Parts.
Complete with Steel Case. Approx. weight, 28 $\frac{3}{4}$ lb.

Sockets

One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches
H-1234	1 $\frac{1}{16}$	H-1242	1 $\frac{5}{16}$	H-1252	1 $\frac{5}{8}$
H-1236	1 $\frac{1}{8}$	H-1244	1 $\frac{3}{8}$	H-1256	1 $\frac{3}{4}$
H-1238	1 $\frac{3}{16}$	H-1246	1 $\frac{7}{16}$	.....	...
H-1240	1 $\frac{1}{4}$	H-1248	1 $\frac{1}{2}$	.....	...

Drive Parts

No. HA-51, Reversible Ratchet, 19" Long.
No. H-20A, Sliding T Handle, 17 $\frac{1}{2}$ " Long.
No. H-110, Exten. 8" Long.
No. H-115, Exten. 15 $\frac{1}{2}$ " Long.
No. H-140, Universal Joint.

Set No. H-18



Contents

18 Pieces: 10 Sockets, 8 Drive Parts.
Complete with Steel Case. Approx. weight, 39 $\frac{1}{2}$ lb.

Sockets

One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches	One Each No.	Nominal Opening Inches
H-1234	1 $\frac{1}{16}$	H-1246	1 $\frac{7}{16}$	H-1260	1 $\frac{7}{8}$
H-1236	1 $\frac{1}{8}$	H-1248	1 $\frac{1}{2}$	H-1264	2
H-1240	1 $\frac{1}{4}$	H-1252	1 $\frac{5}{8}$	.....	...
H-1242	1 $\frac{3}{16}$	H-1258	1 $\frac{13}{16}$	.....	...

Drive Parts

No. HA-51, Reversible Ratchet, 19" Long.
No. H-20A, Sliding T Handle, 17 $\frac{1}{2}$ " Long.
No. H-41, Flexible Handle, 22" Long.
No. H-41B, Sliding Bar for No. H-41.
No. H-104, Exten., 4" Long.
No. H-110, Exten., 8" Long.
No. H-115, Exten., 15 $\frac{1}{2}$ " Long.
No. H-140, Univer. Joint.



ARMSTRONG ARMALLOY SOCKET WRENCHES

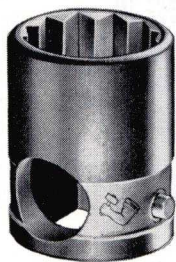
Extra Heavy Duty Series—1" Square Drive

SOCKETS

Made from selected grade alloy steel.

Gauged to accurate limits.

Heat treated and tested to assure maximum strength. Finished in chrome plate.



These sockets are designed for the most severe service where extra strength is required . . . these sockets are equipped with "Drive Lock", a device which eliminates all danger of sockets becoming detached in service. To release socket press the button on the socket and pull.

Sockets have cross hole for 1" diameter sliding bar.

Regular Sockets—Double Hexagon

(12-Point) Openings

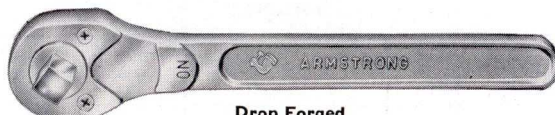
Cross Hole for 1" Bar

No.	Nominal Opening Inches	Approx. Weight Lb.	No.	Nominal Opening Inches	Approx. Weight Lb.
X-1234	1 1/16	.50	X-1268	2 1/8	2.75
X-1236	1 1/8	.50	X-1270	2 3/16	3.00
X-1240	1 1/4	.88	X-1272	2 1/4	3.25
X-1244	1 3/8	1.00	X-1276	2 3/8	3.50
X-1246	1 7/16	1.25	X-1280	2 1/2	3.25
X-1248	1 1/2	1.25	X-1282	2 9/16	4.00
X-1252	1 5/8	1.50	X-1284	2 5/8	4.50
X-1258	1 13/16	1.88	X-1288	2 3/4	3.75
X-1260	1 7/8	2.00	X-1294	2 15/16	4.50
X-1264	2	2.25	X-12100	3 1/8	4.25

DRIVE PARTS



Drop Forged
No. XA-51 Reversible Ratchet



Drop Forged
No. XA-50 Plug Connector Type Ratchet



No. X-20B Sliding Handle



Nos. X-110 and X-115 Extension Bars

No. X-20C Adapter



No. X-41 Flexible Hinge Handle



Nos. HX-130, HX-131
Adapters



No. X-150A
Plug Connector



No. HX-151
Plug Adapter

No. XA-51 Reversible Ratchet can be instantly reversed by snapping the reversing lever to position ON or position OFF. This feature is particularly convenient for close quarter operations. The ratchets will rotate the socket where the working arc is limited to only 15°. All parts are made entirely of alloy and high tensile steel, carefully heat treated to maximum strength. Length, 20 1/2".

No. XA-50 Plug Connector Type Ratchet—In this style, turning the ratchets over reverses its action. Ratchets are furnished with removable plug connectors. The ratchets will rotate the sockets where the working arc is limited to only 15°. All parts are accurately made of alloy and high tensile steel, heat treated to maximum strength. Finished in chrome plate. Length, 20 1/2".

No.	Description	Approx. Wt., Lb.	No.	Description	Approx. Wt., Lb.
XA-51	Reversible Ratchet, 20 1/2" Long	7.0	X-110	Extension Bar, 9" Long, with Cross Hole for 1" Diameter Bar	2.25
XA-50	Plug Connector Type Ratchet	6.3	X-115	Extension Bar, 18" Long, with Cross Hole for 1" Diameter Bar	4.25
XA-50A	Plug Connector Type Ratchet, less Plug Connector, 20 1/2" Long	5.8	HX-130	Adapter, 3/4" Sq. Female, 1" Sq. Male	.59
X-20B	Sliding Handle, 1" Diameter, 20" Long	4.0	HX-131	Adapter, 3/4" Sq. Male, 1" Sq. Female	.59
X-20C	Adapter for Sliding Handle No. X-20B	1.0	HX-151	Plug Adapter, 3/4" Sq. Male, 1" Sq. Male	.50
X-41	Flexible Hinge Handle, 27" Long, with Cross Hole for 1" Bar	9.3	X-150A	Plug Connector, 1" Square	.50

See chart, page 76, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



ARMSTRONG ARMALLOY SOCKET WRENCH SETS

Extra Heavy Duty Series—1" Square Drive

These sets are especially recommended for servicing trucks and busses, as well as for general work requiring extra heavy duty tools for severe service.

Set No. X-10



Contents

10 Pieces: 7 Sockets, 3 Drive Parts.

Complete with Steel Case. Approximate weight, 32 Lb.

Sockets

No.	Nominal Opening Inches	No.	Nominal Opening Inches
X-1240	1 $\frac{1}{4}$	X-1264	2
X-1246	1 $\frac{7}{16}$	X-1270	2 $\frac{3}{16}$
X-1252	1 $\frac{5}{8}$	X-1276	2 $\frac{3}{8}$
X-1258	1 $\frac{13}{16}$	.....	...

Drive Parts

No.	Description
X-20B	Sliding Handle, 20" Long
X-20C	Adapter for No. X-20B
X-110	Extension, 9" Long

Set No. X-16



Contents

16 Pieces: 11 Sockets, 5 Drive Parts.

Complete with Steel Case. Approximate weight, 53 Lb.

Sockets

No.	Nominal Opening Inches	No.	Nominal Opening Inches	No.	Nominal Opening Inches
X-1234	1 $\frac{1}{16}$	X-1246	1 $\frac{7}{16}$	X-1264	2
X-1236	1 $\frac{1}{8}$	X-1248	1 $\frac{1}{2}$	X-1270	2 $\frac{3}{16}$
X-1240	1 $\frac{1}{4}$	X-1252	1 $\frac{5}{8}$	X-1276	2 $\frac{3}{8}$
X-1244	1 $\frac{3}{8}$	X-1258	1 $\frac{13}{16}$	.....	...

Drive Parts

No.	Description
XA-51	Reversible Ratchet, 20 $\frac{1}{2}$ " Long
X-20B	Sliding Handle, 20" Long
X-20C	Adapter for No. X-20B
X-110	Extension, 9" Long
X-115	Extension, 18" Long

See chart, page 76, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



ARMSTRONG ARMALOY ADAPTERS AND PLUG CONNECTORS

With ARMSTRONG Adapters, Sockets of one size drive may be used with Handles and Parts of another size drive.

ADAPTERS



No.	Description
MF-130	1/4" Female—3/8" Male
MF-131	1/4" Male—3/8" Female
FS-130	3/8" Female—1/2" Male
FS-131	3/8" Male—1/2" Female
SH-130	1/2" Female—3/4" Male
SH-131	1/2" Male—3/4" Female
HX-130	3/4" Female—1" Male
HX-131	3/4" Male—1" Female



PLUG ADAPTERS

No.	Description
FM-150	3/8" Male—1/4" Male
FS-151	3/8" Male—1/2" Male
SH-151	1/2" Male—3/4" Male
HX-151	3/4" Male—1" Male

PLUG CONNECTORS

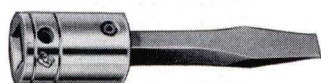
No.	Description	No.	Description
F-150	3/8" Sq.	H-150	3/4" Sq.
S-150	1/2" Sq.	X-150A	1" Sq.

ARMSTRONG ARMALOY SCREWDRIVERS AND BITS

Hexagon stock blades are specially heat treated to give them strength and toughness necessary for long service life. Detachable bits are tempered extremely hard for strength and wearability; easily and inexpensively replaced when necessary.

STANDARD SCREW DRIVERS AND BITS

3/8" Square Drive



No. F-23C

No.	Complete Tool		Holder Only		Bit Only	
	Tip Size Inches	Length Inches	No.	Length Inches	No.	Length Inches
F-23C	1/4x1/32	3	F-23CS	1 1/16	F-23CB	2 5/16
F-25C	5/16x3/64	3	F-25CS	1 1/16	F-25CB	2 5/16
F-31C	3/8x1/16	3 7/16	F-31CS	1 1/16	F-31CB	2 3/4



No. FP-22

PHILLIPS SCREW DRIVERS AND BITS

The detachable bits are tempered extremely hard for strength and wearability and are easily and inexpensively replaced when necessary.

1/4" Square Drive

3/8" Square Drive

Phillips Bit Size	Complete Tool		Holder Only		Bit Only		Complete Tool		Holder Only		Bit Only	
	No.	Lgth. In.	No.	Lgth. In.	No.	Lgth. In.	No.	Lgth. In.	No.	Lgth. In.	No.	Lgth. In.
2	NMP-12	1 27/32	NMP-12S	27/32	NMP-12B	1 5/16	FP-22	2 1/16	FP-22S	1 1/16	FP-22B	1 5/16
3	NMP-22	1 27/32	NMP-22S	27/32	NMP-22B	1 5/16	FP-32	2 5/16	FP-32S	1 1/16	FP-32B	1 9/16
4	NMP-23	3 1/32	NMP-23S	27/32	NMP-23B	2 1/2	*FP-41	1 11/16	FP-41S	1 1/16	FP-41B	1
4	.....	.....	.....	.....	.....	.....	FP-42	2 5/16	FP-42S	1 1/16	FP-42B	1 5/8

*Has a short bit for door handle work.

HEX DRIVERS AND BITS



No. FA-6

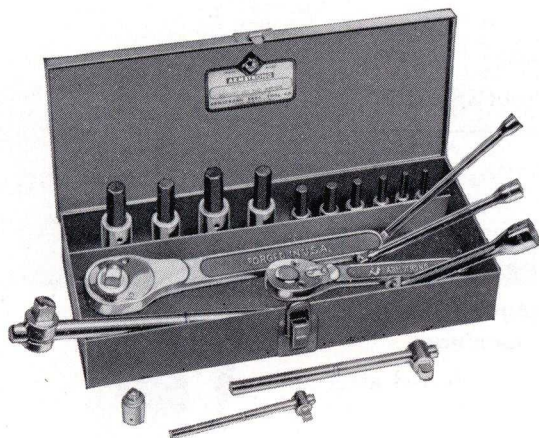
Wrench Size, In.	Sq. Drive Inches	Complete Tool		Holder Only		Bit Only	
		No.	Length, In.	No.	Length, In.	No.	Length, In.
1/8	1/4	NMA-4	2 1/16	NMA-4S	1 1/16	NMA-4B	1 5/16
5/32	1/4	NMA-5	2 1/16	NMA-5S	1 1/16	NMA-5B	1 5/16
3/16	3/8	FA-6	2 1/16	FA-6S	1 1/16	FA-6B	1 5/16
7/32	3/8	FA-7	2 1/16	FA-7S	1 1/16	FA-7B	1 5/16
1/4	3/8	FA-8	2 1/16	FA-8S	1 1/16	FA-8B	1 5/16
5/16	3/8	FA-10	2 1/16	FA-10S	1 1/16	FA-10B	1 3/8
3/8	1/2	SA-12	2 1/16	SA-12S	1 11/16	SA-12B	1 9/16
1/2	1/2	SA-16	3 1/16	SA-16S	3 1/16	SA-16B	2 1/8
9/16	1/2	SA-18	3 3/16	SA-18S	1 11/16	SA-18B	2 7/32
5/8	1/2	SA-20	3 3/16	SA-20S	1 11/16	SA-20B	2 7/32



ARMSTRONG ARMALLOY HOLLOW SCREW WRENCHES

Sets Nos. AM-100 and AM-50

ARMSTRONG Hollow Screw Wrench Sets provide detachable Hex Head Wrenches, handles, extensions and ratchets for all hexagon socket hollow screws from $\frac{1}{4}$ to 1 inch in diameter.



Set No. AM-100

Sockets and drive parts are made from selected grade alloy steel, heat treated and tested to assure maximum strength. Finished in chrome plate.

Two piece construction of Hex Head Wrenches permits easy replacement of Hexagon Bits, which are held in sockets by means of set screws. Bits are rust proof finish.

Hex Head Wrenches

$\frac{1}{4}$ -Inch Square Drive

No.	Size Hexagon Key Inches	Fits Safety Hollow Set Screws, Diam. Screw Inches	Fits Socket Head Cap Screw, Diam. Screw Inches
NMA-4	$\frac{1}{8}$	$\frac{1}{4}$	....
NMA-5	$\frac{5}{32}$	$\frac{5}{16}$	....

$\frac{3}{8}$ -Inch Square Drive

FA-6	$\frac{3}{16}$	..	....
FA-7	$\frac{7}{32}$	$\frac{7}{16}$	$\frac{5}{16}$
FA-8	$\frac{1}{4}$	$\frac{1}{2}$	....
FA-10	$\frac{5}{16}$	$\frac{5}{8}$	$\frac{3}{8}$ & $\frac{7}{16}$

$\frac{1}{2}$ -Inch Square Drive

SA-12	$\frac{3}{8}$	$\frac{3}{4}$	$\frac{1}{2}$ & $\frac{9}{16}$
SA-16	$\frac{1}{2}$	$\frac{7}{8}$	$\frac{5}{8}$
SA-18	$\frac{9}{16}$	1	$\frac{3}{4}$ & $\frac{7}{8}$
SA-20	$\frac{5}{8}$	..	1

Drive Parts

$\frac{1}{4}$ -Inch Square Drive

No.	Description
NM-20A	Sliding T Handle
NM-115	Extension

$\frac{3}{8}$ -Inch Square Drive

F-20A	Sliding T Handle
FA-51	Reversible Ratchet
F-110	Extension
MF-131	Adapter— $\frac{1}{4}$ " Square Male, $\frac{3}{8}$ " Square Female

$\frac{1}{2}$ -Inch Square Drive

S-20A	Sliding T Handle
SA-51	Reversible Ratchet
S-110P	Extension

For complete description of handles and parts, see pages 78, 81 and 85.

Set No. AM-100: Consists of one each of all Sockets, Handles and Drive Parts listed above; 19 Pieces. Complete in fitted Steel Case.

Approximate weight, 10 lb.

Set No. AM-50: Consists of one each of the following:

NMA-4	FA-7	F-20A	NM-115
NMA-5	FA-8	F-110	MF-131
FA-6	FA-51	NM-20A	

11 Pieces, Complete in Steel Case. Approximate weight, 6 lb.



ARMSTRONG REVERSIBLE BRIDGE WRENCHES

For Bridge, Structural and Erecting Work

RATCHET WRENCHES



Handle of wrench is drop forged from selected steel and heat treated to assure maximum strength.

Gears are machined from solid selected steel and properly hardened.

All parts are of steel and those parts subject to wear are hardened.

Each wrench is finished in cadmium plate.

Ratchet Wrenches (Without Sockets)

No.	Length Inches	Approx. Wt., Lb.
2-BR	24	10
3-BR	36	23



Hex Socket

BRIDGE SOCKETS

Square and Hexagon

1 to 3 1/8" Nominal Openings

Sockets are machined from solid selected steel and properly hardened.

Teeth are hob cut.

Sockets are finished in cadmium plate.



Square Socket

Hexagon and Square Sockets

For No. 2-BR Ratchet

Nominal Opening Size Across Flats Inches	Socket No.		Approx. Weight Lb.
	Hexagon	Square	
1	8661	8681	2.6
1 1/16	8662	8682	2.6
1 1/8	8663	8683	2.6
1 1/4	8664	8684	2.6
1 5/16	8665	8685	2.6
1 3/8	8666	8686	2.8
1 7/16	8667	8687	2.8
1 1/2	8668	8688	2.9
1 5/8	8669	8689	3.3
1 13/16	8670	8690	3.3
1 7/8	8671	8691	3.5
2	8672	8692	4.0
2 3/16	8673	....	4.0

For No. 3-BR Ratchet

Nominal Opening Size Across Flats Inches	Socket No.		Approx. Weight Lb.
	Hexagon	Square	
1 5/8	8721	8701	3.3
1 13/16	8722	8702	3.3
2	8723	8703	4.0
2 3/16	8724	8704	4.0
2 1/4	8725	....	4.0
2 3/8	8726	8705	6.3
2 9/16	8727	8706	6.7
2 3/4	8728	8707	7.2
2 15/16	8729	8708	8.0
3	8730	8709	9.0
3 1/8	8731	8710	9.0
....
....

No. BR-12 BRIDGE RATCHET SET

Contents

Set consists of 1 No. 2-BR Reversible Ratchet Socket Wrench and 11 sockets.
Complete in hinged wooden box.



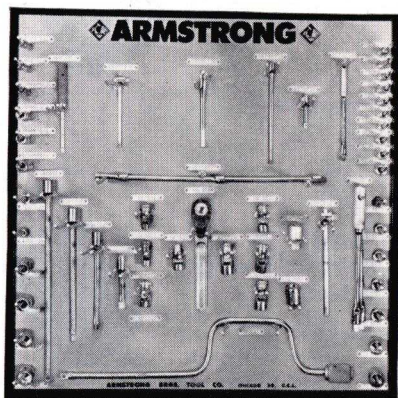
Hexagon Sockets				Square Sockets	
No.	Nominal Opening Inches	No.	Nominal Opening Inches	No.	Nominal Opening Inches
8662	1 1/16	8670	1 13/16	8682	1 1/16
8664	1 1/4	8672	2	8684	1 1/4
8667	1 7/16	8673	2 3/16	8687	1 7/16
8669	1 5/8	....	...	8689	1 5/8

No. BR-12, Complete in Wooden Box. Approximate Weight, 42 Lb.

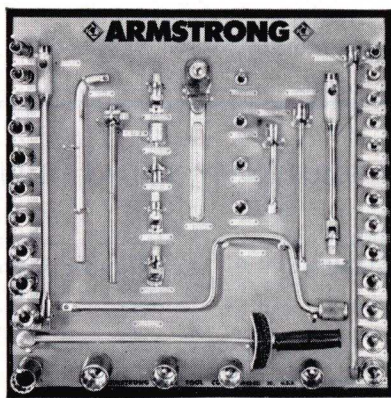


ARMSTRONG WRENCH STOCK BOARDS

These attractively finished boards, fitted to accommodate selected stocks of Hi-Ten and Armaloy Wrenches are available to qualified ARMSTRONG Wrench Distributors.



Sockets and Drive Parts
1/4" and 3/8" Square Drive
BOARD No. 101



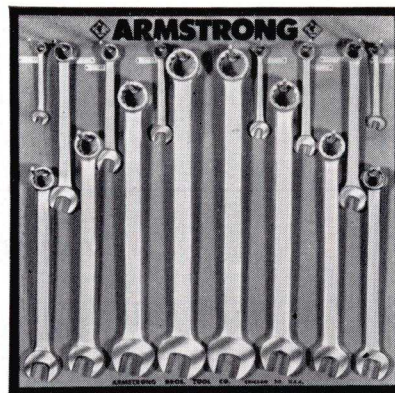
Sockets and Drive Parts
1/2" Square Drive
BOARD No. 202



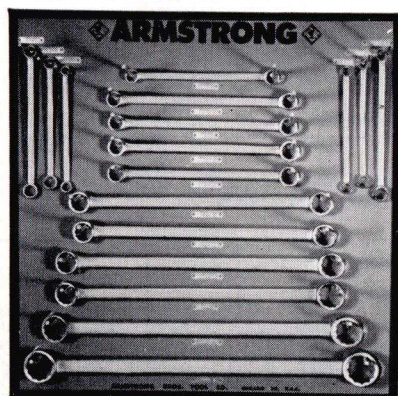
Sockets and Drive Parts
3/4" Square Drive
BOARD No. 303



Engineers' Wrenches
BOARD No. 707



Combination Wrenches
BOARD No. 606



Box Socket Wrenches
BOARD No. 404



Offset Box Socket Wrenches
BOARD No. 505



ARMSTRONG ARMALLOY INDUSTRIAL SOCKETS AND ATTACHMENTS

For Power Wrenches Used in Production and Maintenance

ARMSTRONG ARMALLOY Industrial Sockets are made from a selected grade of alloy steel, carefully heat treated; accurately machined to give proper fit and safe dependable service. Adaptable to most socket locking methods used on the various makes of power wrenches and can also be used on ARMSTRONG ARMALLOY Hand Socket Drive Parts where sockets of extra strength are needed and when corresponding drive sizes are available.

"4" SERIES— $\frac{1}{2}$ " SQUARE DRIVE



**Standard Length
Single Hexagon Openings**

Finish—Rust Resistant

No.	Nominal Opening Inches	NOMINAL DIMENSIONS		Approx. Weight Lb.
		Length Overall, In.	Depth, Opening, In.	
A4-612	$\frac{3}{8}$	$1\frac{1}{2}$	$\frac{5}{16}$	.14
A4-614	$\frac{7}{16}$	$1\frac{1}{2}$	$\frac{9}{32}$	.17
A4-616	$\frac{1}{2}$	$1\frac{1}{2}$	$\frac{21}{64}$	.16
A4-618	$\frac{9}{16}$	$1\frac{1}{2}$	$\frac{13}{32}$	.15
A4-619	$\frac{19}{32}$	$1\frac{1}{2}$	$\frac{5}{16}$	.16
A4-620	$\frac{5}{8}$	$1\frac{1}{2}$	$\frac{29}{64}$	.19
A4-622	$\frac{11}{16}$	$1\frac{1}{2}$	$\frac{29}{64}$	.23
A4-624	$\frac{3}{4}$	$1\frac{1}{2}$	$\frac{9}{16}$	.28
A4-626	$\frac{13}{16}$	$1\frac{1}{2}$	$\frac{7}{16}$	.36
A4-628	$\frac{7}{8}$	$1\frac{3}{8}$	$\frac{39}{64}$	.40
A4-630	$\frac{15}{16}$	$1\frac{3}{4}$	$\frac{23}{32}$	.47
A4-632	1	$1\frac{3}{4}$	$\frac{35}{64}$	.62
A4-634	$1\frac{1}{16}$	2	$\frac{13}{16}$	.67

**Standard Length
Double Square (8-Point) Openings
For Square Nuts**

Finish—Rust Resistant



No.	Nominal Opening Inches	NOMINAL DIMENSIONS		Approx. Weight Lb.
		Length Overall, In.	Depth, Opening, In.	
4-812	$\frac{3}{8}$	$1\frac{1}{2}$	$\frac{5}{16}$	.14
4-814	$\frac{7}{16}$	$1\frac{1}{2}$	$\frac{7}{32}$	.17
4-816	$\frac{1}{2}$	$1\frac{1}{2}$	$\frac{1}{4}$	.20
4-818	$\frac{9}{16}$	$1\frac{1}{2}$	$\frac{5}{16}$	.25
4-820	$\frac{5}{8}$	$1\frac{1}{2}$	$\frac{21}{64}$	.26
4-822	$\frac{11}{16}$	$1\frac{1}{2}$	$\frac{3}{8}$	.33
4-824	$\frac{3}{4}$	$1\frac{1}{2}$	$\frac{7}{16}$	.38
4-826	$\frac{13}{16}$	$1\frac{1}{2}$	$\frac{7}{16}$	.43
4-828	$\frac{7}{8}$	$1\frac{1}{2}$	$\frac{1}{2}$	.50
4-830	$\frac{15}{16}$	$1\frac{3}{4}$	$\frac{9}{16}$	.67
4-832	1	$1\frac{3}{4}$	$\frac{35}{64}$	.78

"4" SERIES ACCESSORIES

ADAPTERS

Male Squares have Ball Plunger



Adapter

No.	Length Inches	Square Female Inches	Square Male Inches	Approx. Wt., Lb.
4-2B	$1\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{8}$	.13
4-5B	$1\frac{11}{16}$	$\frac{1}{2}$	$\frac{5}{8}$	.15
4-6B	$1\frac{3}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	.16

EXTENSIONS

No.	Length Inches	Square Male Inches	Square Female Inches	Approx. Weight Lb.
Male Squares have Spring Plunger				
4-105A	5	$\frac{1}{2}$	$\frac{1}{2}$	.44
4-110A	10	$\frac{1}{2}$	$\frac{1}{2}$	.81



Extension

HEXAGON—SQUARE SHANKS

No.	Length Inches	Square Male Inches	Hex Male Inches	Approx. Weight Lb.	No.	Length Inches	Square Male Inches	Hex Male Inches	Approx. Weight Lb.
Male Squares have Spring Plunger					Male Squares have Spring Plunger				
4-33A	$2\frac{3}{4}$	$\frac{1}{2}$	$\frac{7}{16}$	.19	4-53A	3	$\frac{1}{2}$	$\frac{5}{8}$	.25
4-35A	5	$\frac{1}{2}$	$\frac{7}{16}$	.73	4-55A	5	$\frac{1}{2}$	$\frac{5}{8}$	.52



See chart, page 76, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



ARMSTRONG ARMALLOY INDUSTRIAL SOCKETS AND ATTACHMENTS

For Power Wrenches Used in Production and Maintenance

"6" SERIES— $\frac{3}{4}$ " SQUARE DRIVE

Standard Length—Single Hexagon Openings

Finish—Rust Resistant



No.	Nom. Opening Inches	Length Overall, In.	Depth Opening, In.	Approx. Wt., Lb.	No.	Nom. Opening Inches	Length Overall, In.	Depth Opening, In.	Approx. Wt., Lb.
6-620	$\frac{5}{8}$	$1\frac{3}{4}$	$\frac{29}{64}$	.62	6-636	$1\frac{1}{8}$	$2\frac{1}{8}$	$\frac{13}{16}$	.90
6-622	$\frac{11}{16}$	$1\frac{3}{4}$	$\frac{29}{64}$	.62	6-638	$\frac{13}{16}$	$2\frac{1}{8}$	$\frac{7}{8}$	1.00
6-624	$\frac{3}{4}$	$1\frac{3}{4}$	$\frac{9}{16}$	.62	6-640	$1\frac{1}{4}$	$2\frac{1}{8}$	$\frac{29}{32}$	1.00
6-625	$\frac{25}{32}$	$1\frac{3}{4}$	$\frac{7}{16}$	.70	6-642	$\frac{15}{16}$	$2\frac{1}{4}$	$\frac{49}{64}$	1.13
6-626	$\frac{13}{16}$	$1\frac{7}{8}$	$\frac{7}{16}$	.70	6-644	$\frac{13}{8}$	$2\frac{1}{4}$	$\frac{49}{64}$	1.19
6-628	$\frac{7}{8}$	$1\frac{7}{8}$	$\frac{39}{64}$	.70	6-646	$1\frac{7}{16}$	$2\frac{1}{4}$	$\frac{49}{64}$	1.30
6-630	$\frac{15}{16}$	2	$\frac{23}{32}$	.70	*6-648	$1\frac{1}{2}$	$2\frac{3}{8}$	$\frac{7}{8}$	1.44
6-632	1	2	$\frac{35}{64}$	.70	6-652	$\frac{15}{8}$	$2\frac{3}{8}$	$\frac{7}{8}$	1.56
6-634	$1\frac{1}{16}$	2	$\frac{13}{16}$	.81	6-654	$1\frac{11}{16}$	$2\frac{3}{8}$	1	1.56

*Can be used for servicing Standard Budd Wheels.



8-Point Opening

Standard Length—Square (4-Point) and Double Square (8-Point) Openings

Finish—Rust Resistant



4-Point Opening

No.	Nom. Opening Inches	Length Overall, In.	Depth Opening, In.	Approx. Wt., Lb.	No.	Nom. Opening Inches	Length Overall, In.	Depth Opening, In.	Approx. Wt., Lb.
*6-420	$\frac{5}{8}$	$1\frac{5}{8}$	$\frac{21}{64}$	.56	6-832	1	2	$\frac{35}{64}$	.94
*6-424	$\frac{3}{4}$	$1\frac{3}{4}$	$\frac{7}{16}$	.75	6-834	$1\frac{1}{16}$	2	$\frac{5}{8}$	.94
*†6-426	$\frac{13}{16}$	$1\frac{7}{8}$	$\frac{7}{16}$	.75	6-836	$1\frac{1}{8}$	$2\frac{1}{8}$	$\frac{21}{32}$	1.00
6-826	$\frac{13}{16}$	$1\frac{7}{8}$	$\frac{7}{16}$	.88	6-838	$\frac{13}{16}$	$2\frac{1}{8}$	$\frac{21}{32}$	1.37
6-828	$\frac{7}{8}$	$1\frac{7}{8}$	$\frac{1}{2}$	.88	6-840	$1\frac{1}{4}$	$2\frac{1}{8}$	$\frac{3}{4}$	1.50
6-830	$\frac{15}{16}$	$1\frac{7}{8}$	$\frac{9}{16}$	.88	6-842	$\frac{15}{16}$	$2\frac{1}{4}$	$\frac{49}{64}$	1.80
.....	...	...	...	....	6-846	$1\frac{7}{16}$	$2\frac{1}{4}$	$\frac{49}{64}$	2.00

*These sockets have single square openings. †Can be used for servicing Standard Budd Wheels.

"6" SERIES ACCESSORIES

ADAPTERS

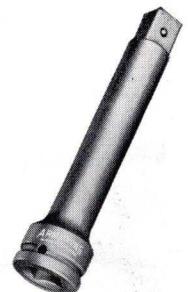


Adapter

No.	Length Inches	Square Female Inches	Square Male Inches	Approx. Weight Lb.
Male Squares have Thru Pin Hole				
6-4	$2\frac{1}{16}$	$\frac{3}{4}$	$\frac{1}{2}$	.60
6-5	$2\frac{1}{8}$	$\frac{3}{4}$	$\frac{5}{8}$	.68
6-7	$2\frac{1}{2}$	$\frac{3}{4}$	1	.90

EXTENSIONS

No.	Length Inches	Square Male Inches	Square Female Inches	Approx. Weight Lb.
Male Squares have Thru Pin Hole				
6-107	7	$\frac{3}{4}$	$\frac{3}{4}$	1.50
6-110	10	$\frac{3}{4}$	$\frac{3}{4}$	2.44
6-113	13	$\frac{3}{4}$	$\frac{3}{4}$	3.00



Extension

For Retainer Pins and "O" Rings to fit above Sockets, Adapters and Extensions, see page 102.

See chart, page 76, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws



ARMSTRONG ARMALLOY INDUSTRIAL SOCKETS AND ATTACHMENTS

For Power Wrenches Used in Production and Maintenance

"7" SERIES—1" SQUARE DRIVE

Standard Length

Single Hexagon Openings

Finish—Rust Resistant



No.	Nominal Opening Inches	NOMINAL DIMENSIONS		Approx. Weight Lb.	No.	Nominal Opening Inches	NOMINAL DIMENSIONS		Approx. Weight Lb.
		Length Overall Inches	Depth Opening Inches				Length Overall Inches	Depth Opening Inches	
7-624	$\frac{3}{4}$	$2\frac{1}{16}$	$\frac{9}{16}$	.75	7-666	$2\frac{1}{16}$	$3\frac{1}{16}$	$1\frac{13}{64}$	3.25
7-626	$\frac{13}{16}$	$2\frac{1}{8}$	$\frac{7}{16}$	1.00	7-668	$2\frac{1}{8}$	$3\frac{1}{8}$	$1\frac{13}{64}$	3.25
7-628	$\frac{7}{8}$	$2\frac{3}{16}$	$\frac{39}{64}$	1.00	7-670	$2\frac{3}{16}$	$3\frac{1}{8}$	$1\frac{13}{64}$	3.75
7-630	$\frac{15}{16}$	$2\frac{3}{16}$	$\frac{23}{32}$	1.00	7-672	$2\frac{1}{4}$	$3\frac{1}{4}$	$1\frac{5}{16}$	3.75
7-632	1	$2\frac{1}{4}$	$\frac{35}{64}$	1.25	7-674	$2\frac{5}{16}$	$3\frac{5}{16}$	$1\frac{5}{16}$	4.00
7-634	$1\frac{1}{16}$	$2\frac{1}{4}$	$\frac{13}{16}$	1.25	7-676	$2\frac{3}{8}$	$3\frac{5}{16}$	$1\frac{5}{16}$	4.00
7-636	$1\frac{1}{8}$	$2\frac{3}{8}$	$\frac{13}{16}$	1.25	7-678	$2\frac{7}{16}$	$3\frac{1}{2}$	$1\frac{25}{64}$	4.25
7-638	$\frac{13}{16}$	$2\frac{7}{16}$	$\frac{7}{8}$	1.25	7-680	$2\frac{1}{2}$	$3\frac{1}{2}$	$1\frac{25}{64}$	4.75
7-640	$1\frac{1}{4}$	$2\frac{7}{16}$	$\frac{29}{32}$	1.37	7-682	$2\frac{9}{16}$	$3\frac{1}{2}$	$1\frac{25}{64}$	5.25
7-642	$\frac{15}{16}$	$2\frac{9}{16}$	$\frac{49}{64}$	1.37	7-684	$2\frac{5}{8}$	$3\frac{11}{16}$	$1\frac{1}{2}$	5.50
7-644	$\frac{13}{8}$	$2\frac{9}{16}$	$\frac{49}{64}$	1.37	7-686	$2\frac{11}{16}$	$3\frac{11}{16}$	$1\frac{1}{2}$	5.40
7-646	$1\frac{7}{16}$	$2\frac{9}{16}$	$\frac{49}{64}$	1.37	7-688	$2\frac{3}{4}$	$3\frac{11}{16}$	$1\frac{1}{2}$	6.00
7-648	$1\frac{1}{2}$	$2\frac{5}{8}$	$\frac{7}{8}$	1.75	7-690	$2\frac{13}{16}$	$3\frac{7}{8}$	$1\frac{39}{64}$	6.25
7-650	$\frac{19}{16}$	$2\frac{5}{8}$	$\frac{7}{8}$	1.75	7-692	$2\frac{7}{8}$	$3\frac{15}{16}$	$1\frac{39}{64}$	5.75
7-652	$\frac{15}{8}$	$2\frac{5}{8}$	$\frac{7}{8}$	1.75	7-694	$2\frac{15}{16}$	$3\frac{15}{16}$	$1\frac{39}{64}$	6.50
7-654	$1\frac{11}{16}$	$2\frac{11}{16}$	1	1.87	7-696	3	$4\frac{1}{16}$	$1\frac{23}{32}$	6.75
7-656	$\frac{13}{4}$	$2\frac{11}{16}$	1	1.87	7-6100	$3\frac{1}{8}$	$4\frac{1}{8}$	$1\frac{23}{32}$	7.50
7-658	$\frac{113}{16}$	$2\frac{3}{4}$	1	2.50	7-6104	$3\frac{1}{4}$	$4\frac{1}{8}$	$1\frac{23}{32}$	7.50
7-660	$1\frac{7}{8}$	$2\frac{7}{8}$	$1\frac{3}{32}$	2.50	7-6108	$3\frac{3}{8}$	$4\frac{1}{2}$	$1\frac{59}{64}$	8.0
7-662	$1\frac{15}{16}$	$2\frac{7}{8}$	$1\frac{3}{32}$	3.00	7-6112	$3\frac{1}{2}$	$4\frac{1}{2}$	$1\frac{59}{64}$	8.8
7-664	2	$2\frac{15}{16}$	$1\frac{3}{32}$	3.25	7-6116	$3\frac{5}{8}$	$4\frac{1}{2}$	$1\frac{59}{64}$	8.8

For Retainer Pins and "O" Rings to fit above Sockets, see below.

See chart, page 76, listing nominal wrench openings for American Standard Bolts, Nuts and Cap Screws

RETAINER PINS AND "O" RINGS FOR "6" AND "7" SERIES

"O" Rings are specially designed for resistance to oil and grease.

Retainer Pins are made of selected steel—oil finished.

Retainer Pins and "O" Rings are packaged separately, 25 of each to a box.



Pins



"O" Rings

Square Drive Size, In.	Socket and Extension Nos.	RETAINER PINS		"O" TYPE RINGS		Approx. Weight Lb.
		Type	Length Inches	Type	Diameter Inches	
$\frac{3}{4}$	6-616 through 6-638 6-640 through 6-654 6-416 through 6-426 6-826 through 6-830 6-832 through 6-846 All Adapters All Extensions Fits All Sizes	B C B B C C C C D	$1\frac{1}{8}$ $1\frac{1}{2}$ $1\frac{1}{8}$ $1\frac{1}{8}$ $1\frac{1}{2}$ $1\frac{1}{2}$ $1\frac{1}{2}$ $1\frac{7}{8}$	A-1	$1\frac{7}{16}$	.01
1				B-1	$1\frac{3}{4}$	.02



ARMSTRONG ARMALLOY INDUSTRIAL SOCKETS AND ATTACHMENTS

For Power Wrenches Used in Production and Maintenance

"7" SERIES—1" SQUARE DRIVE

Standard Length—Square (4-Point) and Double Square (8-Point) Openings

Finish—Rust Resistant



8-Point Opening



4-Point Opening

No.	Nominal Opening Inches	NOMINAL DIMENSIONS		Approx. Weight Lb.	No.	Nominal Opening Inches	NOMINAL DIMENSIONS		Approx. Weight Lb.
		Length Overall Inches	Depth Opening Inches				Length Overall Inches	Depth Opening Inches	
*7-424	$\frac{3}{4}$	$2\frac{1}{8}$	$\frac{7}{16}$	1.37	7-852	$1\frac{5}{8}$	$2\frac{5}{8}$	$\frac{7}{8}$	3.00
*7-425	$\frac{25}{32}$	$2\frac{1}{8}$	$\frac{3}{8}$	1.37	7-854	$1\frac{11}{16}$	$2\frac{13}{16}$	1	3.25
*7-426	$\frac{13}{16}$	$2\frac{1}{8}$	$\frac{7}{16}$	1.37	7-856	$1\frac{3}{4}$	$2\frac{13}{16}$	1	3.50
*7-428	$\frac{7}{8}$	$2\frac{1}{4}$	$\frac{1}{2}$	1.50	7-858	$1\frac{13}{16}$	$2\frac{13}{16}$	1	3.50
*7-430	$\frac{15}{16}$	$2\frac{1}{4}$	$\frac{9}{16}$	1.60	7-860	$1\frac{7}{8}$	3	$1\frac{3}{32}$	3.75
*7-432	1	$2\frac{5}{16}$	$\frac{35}{64}$	1.75	7-862	$1\frac{15}{16}$	$3\frac{1}{16}$	$1\frac{3}{32}$	4.30
*7-434	$1\frac{1}{16}$	$2\frac{5}{16}$	$\frac{5}{8}$	1.75	7-864	2	$3\frac{1}{16}$	$1\frac{3}{32}$	4.50
*7-436	$1\frac{1}{8}$	$2\frac{1}{2}$	$2\frac{1}{32}$	2.00	7-866	$2\frac{1}{16}$	$3\frac{1}{4}$	$1\frac{13}{64}$	4.80
7-838	$1\frac{3}{16}$	$2\frac{1}{2}$	$2\frac{1}{32}$	2.00	7-868	$2\frac{1}{8}$	$3\frac{1}{4}$	$1\frac{13}{64}$	5.00
7-840	$1\frac{1}{4}$	$2\frac{1}{2}$	$\frac{3}{4}$	2.00	7-870	$2\frac{3}{16}$	$3\frac{1}{4}$	$1\frac{13}{64}$	5.15
7-842	$1\frac{5}{16}$	$2\frac{1}{2}$	$\frac{49}{64}$	2.40	7-872	$2\frac{1}{4}$	$3\frac{7}{16}$	$1\frac{5}{16}$	5.68
7-844	$1\frac{3}{8}$	$2\frac{1}{2}$	$\frac{49}{64}$	2.37	7-874	$2\frac{5}{16}$	$3\frac{7}{16}$	$1\frac{5}{16}$	5.75
7-846	$1\frac{7}{16}$	$2\frac{1}{2}$	$\frac{49}{64}$	2.37	7-876	$2\frac{3}{8}$	$3\frac{1}{2}$	$1\frac{5}{16}$	6.50
7-848	$1\frac{1}{2}$	$2\frac{5}{8}$	$\frac{7}{8}$	2.62	7-888	$2\frac{3}{4}$	$3\frac{7}{8}$	$1\frac{1}{2}$	7.25
7-850	$1\frac{9}{16}$	$2\frac{5}{8}$	$\frac{7}{8}$	3.00	.....	...	...	...	....

*These sockets have single square (4-point) openings.

"7" SERIES ACCESSORIES

ADAPTERS

No.	Length Inches	Square Female Inches	Square Male Inches	Approx. Weight Lb.
Male Squares have Thru Pin Hole				
7-6	3	1	$\frac{3}{4}$	1.75

EXTENSIONS

No.	Length Inches	Square Male Inches	Square Female Inches	Approx. Weight Lb.
Male Squares have Thru Pin Hole				
7-107	7	1	1	3.5



Adapter



Extension

For Retainer Pins and "O" Rings to fit above Adapters and Extensions, see page 102.



ARMSTRONG ARMALLOY ADJUSTABLE WRENCHES

Selected Alloy Steel

ARMALLOY Adjustable Wrenches are light weight with thin tapered jaws for use in inaccessible places.



ARMALLOY Adjustable Wrenches are drop forged from a selected grade of alloy steel.

All parts are accurately machined, carefully heat treated and finished in chrome plate with handle satin finish and head highly polished.

Size Inches	Capacity Inches	THICKNESS HEAD		Approximate Weight, Lb.
		Tip of Jaws Inches	Extreme, Inches	
4	1/2	1/8	5/16	.09
6	3/4	3/16	3/8	.25
8	15/16	15/64	15/32	.50
10	1 1/8	9/32	9/16	.81
12	1 5/16	11/32	11/16	1.44
15	1 11/16	17/32	61/64	3.00
18	2 1/16	41/64	1 5/32	5.00
24	2 7/16	7/8	1 3/8	10.00

ARMSTRONG SLIP-JOINT PLIERS

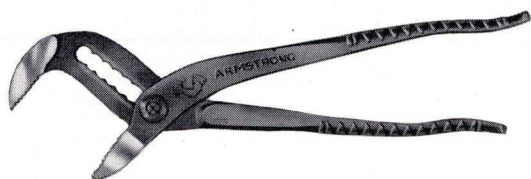
Drop Forged Steel

ARMSTRONG Slip-Joint Pliers have been especially designed for use in close quarter operation. Drop forged from selected grade alloy steel and made with thin narrow jaws; bolt sturdily holds the jaws and assures maximum strength and rigidity.



No. 1519

No. 1519 Ignition Pliers are particularly suited for small, delicate work such as wiring, panel, switchboard and radio. They are 3-position and open from 0 to 5/8", jaws positioned parallel at most important openings. Finish is chrome plate.



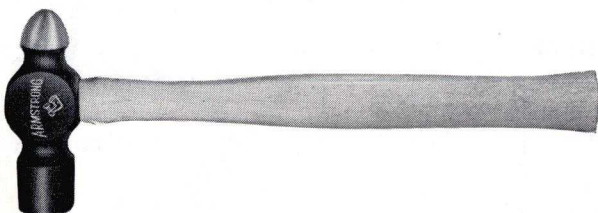
No. 1520

No. 1520 Pump Pliers are long and slim for ease of operation and are suited for most jobs; 7-position type, and open from 0 to 2 inches. Knurled handles for positive grip. Chrome plate finish.

No.	Length Inches	Description	Approximate Weight, Lb.
1519	5	Ignition Pliers	.08
1520	10	Pump Pliers	.57

ARMSTRONG BALL PEIN HAMMERS

ARMSTRONG Ball Pein Hammers are drop forged from selected steel, carefully heat treated for extra strength and durability. Handles are made of second growth white hickory, are clear lacquered and permanently wedged into the head.



No.	Length Inches	Approximate Weight, Lb.
7-0	9 3/4	.12
5-0	9 3/4	.25
3-0	11 1/2	.50
2-0	13 1/2	.75
0	14	1.00
2	14 1/2	1.50
4	15 1/2	2.00
6	16	2.50

ARMSTRONG BROS. PIPE TOOLS

ARE *Better* PIPE TOOLS

ARMSTRONG BROS. Better Pipe Tools are of standard types, but each is an improved tool with drop forged steel or hardened parts wherever they will improve tool performance or add to tool life.

Over 60 years of experience as designers and makers of High Grade Tools, and our excellent system of Jigs, Gauges, Tests and inspection insures our ability to deliver Pipe Tools of superior quality which will merit and hold the wide preference given ARMSTRONG Tools by skilled workers in other lines.

In ordering specify ARMSTRONG BROS. Pipe Tools identified by the Arm and Hammer trademark.

THE TRADE MARK



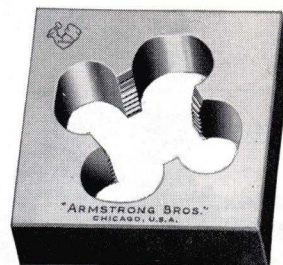
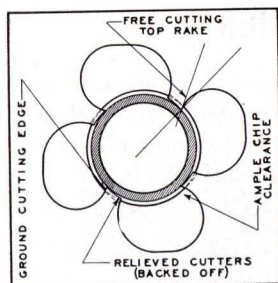
OF QUALITY

ARMSTRONG BROS. SOLID DIES

One-Piece Vanadium Tool Steel

These dies excel in easy cutting, long lasting qualities due to their improved design, superior material, excellent workmanship. Made from a solid piece of vanadium tool steel. Teeth are carefully hardened, drawn, tempered,

tested and cut at proper angle to give best cutting rake; "backed off" to give clearance from the point of the cutting teeth. This is the only cutter form which produces the easy cutting, uniformity and smoothness of a lathe cut thread. Shape of body provides ample chip clearance, preventing jamming of die with resultant injury to both work and die. Fit any stock of standard dimensions.



SOLID PIPE DIES

Right-hand American National Standard (Briggs) Dies will be sent if not otherwise specified.

Each die is boxed separately. Left-hand dies available at special prices.

For Stock No.	Dimensions of Dies, Inches	For Threading Pipe Size, Inches	Approx. Wt., Lb.
0	2 x2 x1½	1/8, 1/4, 3/8, 1/2	.38
1	2½x2½x¾	1/8, 1/4, 3/8, 1/2, 3/4, 1	1.00
1½	3 x3 x¾	1/8, 1/4, 3/8, 1/2, 3/4, 1, 1¼, 1½	1.50
2	4 x4 x7/8	1/2, 3/4, 1, 1¼, 1½, 2	3.38

For selected sets, complete with stock, see page 108. Note: Dies for threading I.P.S. brass and copper pipe can be furnished when specified; these dies are marked (Brass Pipe Only).



ARMSTRONG BROS. SOLID DIES

One-Piece Vanadium Tool Steel

These Dies are described and illustrated on page 105.

SOLID BOLT DIES

In stock with American National Coarse (U. S. Std.) Thread. However, American National Fine (S.A.E. Std.) and Whitworth Standard right or left-hand thread Dies can be furnished at special prices.

Unless otherwise specified, Dies with right-hand American National Coarse Thread (U.S. Std.) will be shipped. Each Die is boxed separately.

Left-hand dies available at special prices.

For Stock No.	Dimensions of Dies, Inches	For Threading Bolts Diameter, Inches	Approx. Wt., Lb.
0	2 x2 x $\frac{1}{2}$	$\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$, $\frac{1}{2}$, $\frac{9}{16}$, $\frac{5}{8}$, $\frac{11}{16}$, $\frac{3}{4}$	.38
1	$2\frac{1}{2}$ x $2\frac{1}{2}$ x $\frac{3}{4}$	$\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$, $\frac{1}{2}$, $\frac{9}{16}$, $\frac{5}{8}$, $\frac{11}{16}$, $\frac{3}{4}$, $\frac{13}{16}$, $\frac{7}{8}$, $\frac{15}{16}$, 1, $1\frac{1}{8}$, $1\frac{1}{4}$	1.00
2	4 x4 x $\frac{7}{8}$	1, $1\frac{1}{8}$, $1\frac{1}{4}$, $1\frac{3}{8}$, $1\frac{1}{2}$, $1\frac{5}{8}$, $1\frac{3}{4}$, $1\frac{7}{8}$, 2	3.38

List of Standard Bolt Threads—Threads per Inch

Diameter Bolts, Inches	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{7}{16}$	$\frac{1}{2}$	$\frac{9}{16}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1	$1\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{3}{8}$	$1\frac{1}{2}$	$1\frac{5}{8}$	$1\frac{3}{4}$	$1\frac{7}{8}$	2
N.C. (U.S. Standard).....	20	18	16	14	13	12	11	10	9	8	7	7	6	6	$5\frac{1}{2}$	5	5	$4\frac{1}{2}$
N.F. (S.A.E. Standard).....	28	24	24	20	20	18	18	16	14	14	12	12	12	12	.....	.....	.....	.....
Whitworth Standard.....	20	18	16	14	12	12	11	10	9	8	7	7	6	6	5	5	$4\frac{1}{2}$	$4\frac{1}{2}$

ARMSTRONG BROS. STOCKS FOR SOLID DIES

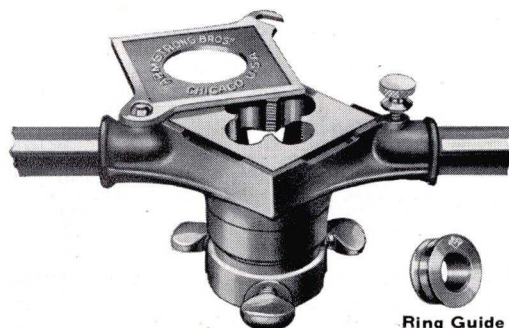


Stock Nos. 0, 1 and $1\frac{1}{2}$

Improved design; will fit any solid pipe or bolt die of standard dimensions. Bodies are certified malleable iron, finished in yellow baked enamel. Handles and retaining plates are smoothly burnished, finished in bright cadmium plate.

No. 2 pipe stock is equipped with a lead screw, $11\frac{1}{2}$ pitch thread.

Stock No.	For Die Dimensions, Inches	Approx. Wt., Lb.
0	2 x2 x $\frac{1}{2}$	2.75
1	$2\frac{1}{2}$ x $2\frac{1}{2}$ x $\frac{3}{4}$	5.25
$1\frac{1}{2}$	3 x3 x $\frac{3}{4}$	6.25
2	4 x4 x $\frac{7}{8}$	12.50



Stock No. 2 showing Pipe Die Lead Screw

EXTRA PARTS

Ring Guides, Pipe
Ring Guides, Bolt
Lead Screws
Handles (pair)
Retaining Plates
Screws

In ordering, specify part required and number of stock on which it will be used.

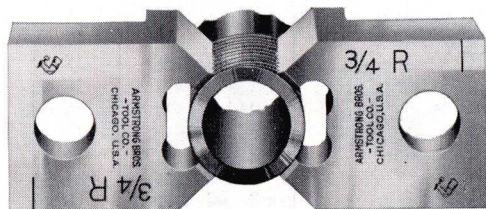


ARMSTRONG BROS. ADJUSTABLE DIES

Vanadium Tool Steel Dies

Made of special vanadium tool steel with backed off chasers. Features incorporated in these dies include: correct cutting angle or rake; backed off chasers or cutting teeth, correct throat angle; ample chip clearance; easy to start, cut easy and fast and back off smoothly without jamming or tearing. Our modern hardening and tempering methods and equipment, the exceptionally high quality of material, and rigid inspection and tests, insure maximum wear and service.

ADJUSTABLE PIPE DIES



These Dies fit any Stock adapted for this type of die.

In stock for American National Standard (Briggs) and British (Whitworth) Standard threads. Unless otherwise specified, right-hand American National Standard (Briggs) Thread Dies will be shipped.

Left-hand dies are available at special prices.

For selected sets complete with Stock, see page 110.

Each Die is boxed separately.

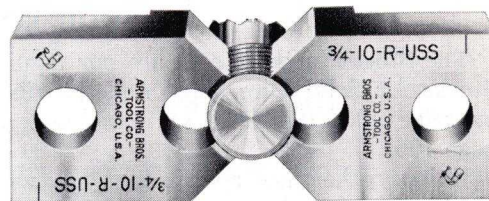
For Stock No.	Width of Die	For Threading Pipe Size, Inches	Approx. Wt., Lb.
2-A	1½	⅛, ¼, ⅜, ½, ¾, 1	.75
3-A	2½	½, ¾, 1, 1¼, 1½, 2	2.38

Note—Dies for threading I.P.S. brass and copper pipe can be furnished when specified. Dies are marked (Brass Pipe Only).

ADJUSTABLE BOLT DIES

These Dies fit any stock of standard dimensions. In stock with American National Coarse (U.S. Std.) Thread. However, American National Fine (S.A.E. Std.) and Whitworth Standard right or left-hand thread Dies can be furnished at special prices, except that No. 3-A bolt dies are not available in any size with American National Fine (S.A.E.) Thread. Unless otherwise specified, Dies with right-hand American National Standard Coarse Thread (U.S. Std.) will be shipped.

Left-hand dies are available at special prices. For selected sets complete with Stock, see page 110.



For Stock No.	Width of Die	For Threading Bolts Diameter, Inches	Approx. Wt., Lb.
1-A	1	¼, ⅜, ½, ⅝, ¾, 1	.25
2-A	1½	½, ⅝, ¾, 1, 1¼, 1½	.75
3-A	2½	1, 1¼, 1½, 1¾, 2, 2¼, 2½	2.38

ARMSTRONG BROS. STOCKS FOR ADJUSTABLE DIES

Adapted for use of any standard Die of this type. Improved design with smooth, compact body, without sharp edges or ribs; fits comfortably into the hand. Bodies are certified malleable iron, carefully machined, finished in yellow baked enamel. Handles are smoothly burnished, finished in bright cadmium plate. Ring guides furnished, unless adjustable guide is specified.



Adjustable
Pipe Guide

Ring
Guide

Stock No.	2-A	3-A
Approximate Weight, Stock Complete, less Dies or Guides.....lb.	5.75	12.25

Adjustable Pipe Guides

Adjustable Pipe Guide can be instantly adjusted and centers the stock accurately at all times, the jaws being locked at the desired position by a thumb screw.

Body is certified malleable iron; thrust pins are integral with jaw segments which are hardened.

Extra Parts available: Ring Guides, Handles, Wrench, Collar Screw, Guide Screw, Adjusting Screw. In ordering, specify part and Number of Stock with which it is to be used.

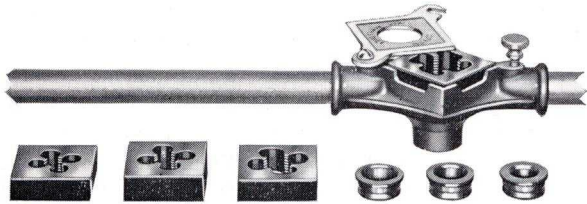
No.	For Stock No.	Capacity, Diam. Pipe, Inches	Approx. Weight, Lb.
292	2-A	⅛ to 1	1.63
293	3-A	½ to 2	5.00



ARMSTRONG BROS. SOLID DIES IN SETS WITH STOCKS

Vanadium Tool Steel Dies

SOLID PIPE DIES IN SETS WITH STOCK



Each set consists of one Stock, complete with guides and an assortment of Dies as listed. Right-hand American National Standard (Briggs) Dies will be furnished if not otherwise specified in order.

Each set is boxed.

Set No.	For Threading Pipe Size, Inches	Dimensions of Dies, Inches	Approx. Wt., Lb. Complete
0	Any One Size	2 x2 x $\frac{1}{2}$	4.00
0-2	$\frac{1}{2}$, $\frac{3}{4}$	2 x2 x $\frac{1}{2}$	4.50
0-3	$\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$	2 x2 x $\frac{1}{2}$	5.00
0-4	$\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$	2 x2 x $\frac{1}{2}$	5.50
0-4A	$\frac{1}{8}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$	2 x2 x $\frac{1}{2}$	5.50
0-5	$\frac{1}{8}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$	2 x2 x $\frac{1}{2}$	6.50
1	Any One Size	2 $\frac{1}{2}$ x2 $\frac{1}{2}$ x $\frac{3}{4}$	6.75
1-2	$\frac{1}{2}$, $\frac{3}{4}$	2 $\frac{1}{2}$ x2 $\frac{1}{2}$ x $\frac{3}{4}$	11.50
1-3	$\frac{1}{2}$, $\frac{3}{4}$, 1	2 $\frac{1}{2}$ x2 $\frac{1}{2}$ x $\frac{3}{4}$	12.00
1-4	$\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, 1	2 $\frac{1}{2}$ x2 $\frac{1}{2}$ x $\frac{3}{4}$	12.50
1-5	$\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, 1	2 $\frac{1}{2}$ x2 $\frac{1}{2}$ x $\frac{3}{4}$	13.00
1-6	$\frac{1}{8}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, 1	2 $\frac{1}{2}$ x2 $\frac{1}{2}$ x $\frac{3}{4}$	14.00
1 $\frac{1}{2}$	Any One Size	3 x3 x $\frac{3}{4}$	12.75
1 $\frac{1}{2}$ -2	$\frac{3}{4}$, 1	3 x3 x $\frac{3}{4}$	14.00
1 $\frac{1}{2}$ -3	$\frac{3}{4}$, 1, 1 $\frac{1}{4}$	3 x3 x $\frac{3}{4}$	16.25
1 $\frac{1}{2}$ -4	$\frac{1}{2}$, $\frac{3}{4}$, 1, 1 $\frac{1}{4}$	3 x3 x $\frac{3}{4}$	17.00
1 $\frac{1}{2}$ -5	$\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, 1, 1 $\frac{1}{4}$	3 x3 x $\frac{3}{4}$	18.00
1 $\frac{1}{2}$ -6	$\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, 1, 1 $\frac{1}{4}$	3 x3 x $\frac{3}{4}$	22.00
2-3	1 $\frac{1}{4}$, 1 $\frac{1}{2}$, 2	4 x4 x $\frac{7}{8}$	25.00
2-4	1, 1 $\frac{1}{4}$, 1 $\frac{1}{2}$, 2	4 x4 x $\frac{7}{8}$	29.00
2-5	$\frac{3}{4}$, 1, 1 $\frac{1}{4}$, 1 $\frac{1}{2}$, 2	4 x4 x $\frac{7}{8}$	33.00
2-6	$\frac{1}{2}$, $\frac{3}{4}$, 1, 1 $\frac{1}{4}$, 1 $\frac{1}{2}$, 2	4 x4 x $\frac{7}{8}$	37.00

SOLID BOLT DIES IN SETS WITH STOCK

The Stocks in these sets are our regular Stocks for Solid Dies listed and described on page 106; the Dies are described on page 106.

Unless otherwise specified, Dies with right-hand American National Standard Coarse Thread (U.S. Std.) will be shipped. However, American National Fine (S.A.E.) Standard, right or left-hand thread Dies can be furnished at special prices.

Each set consists of one Stock complete with guides and an assortment of Dies as listed. Each set is boxed.

Set No.	For Threading Bolts Diameter, Inches	Dimensions of Dies, Inches	Approx. Wt., Lb. Complete
0-B-2	$\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$, $\frac{1}{2}$	2 x2 x $\frac{1}{2}$	6.5
0-B-3	$\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$	2 x2 x $\frac{1}{2}$	6.5
0-B-4	$\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$	2 x2 x $\frac{1}{2}$	8.0
1-B-1	$\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, 1	2 $\frac{1}{2}$ x2 $\frac{1}{2}$ x $\frac{3}{4}$	13.0
1-B-2	$\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, 1	2 $\frac{1}{2}$ x2 $\frac{1}{2}$ x $\frac{3}{4}$	15.0
1-B-3	$\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$	2 $\frac{1}{2}$ x2 $\frac{1}{2}$ x $\frac{3}{4}$	16.0
1-B-4	$\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, 1, 1 $\frac{1}{8}$, 1 $\frac{1}{4}$	2 $\frac{1}{2}$ x2 $\frac{1}{2}$ x $\frac{3}{4}$	15.0
1-B-5	$\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, 1	2 $\frac{1}{2}$ x2 $\frac{1}{2}$ x $\frac{3}{4}$	18.0
1-B-6	$\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, 1, 1 $\frac{1}{8}$, 1 $\frac{1}{4}$	2 $\frac{1}{2}$ x2 $\frac{1}{2}$ x $\frac{3}{4}$	18.5

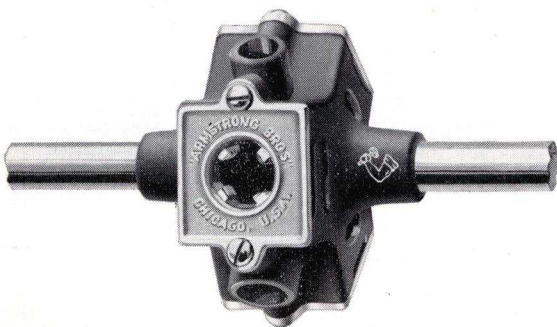
In ordering extra ring guides, pipe or bolt, specify size and No. of Stock on which it will be used.

For list of Standard Bolt Threads, see page 106.

ARMSTRONG BROS. TRIPLEX STOCK WITH SOLID PIPE DIES

Vanadium Tool Steel Dies

A very convenient stock for use where the range of pipe used is limited to not more than three sizes and not over 1 inch; no loose bushings or guides are needed. Dies of the three sizes most used are always in place for instant use. Light, well balanced; soon repays its cost in time saved, ordinarily lost in changing Dies and bushings or looking for them when misplaced.



Body is certified malleable iron, finished in yellow baked enamel. Handles and retaining plates smoothly burnished, finished in bright cadmium plate. Each set is boxed.

Left-hand dies available at special prices.

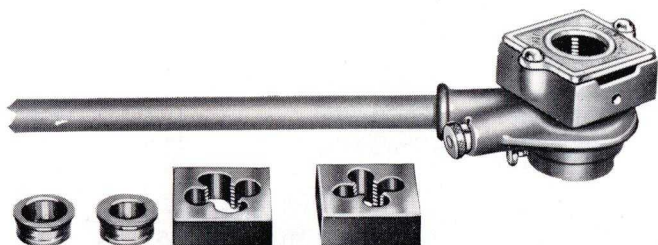
Set No.	For Threading Pipe, Inches (2 $\frac{1}{2}$ x2 $\frac{1}{2}$ x $\frac{3}{4}$ -Inch Dies)	APPROXIMATE WEIGHT, LB.		
		Stock Only Without Dies	Extra Dies	Set Complete
1-T-A	$\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$	8.25	1	11.5
1-T-B	$\frac{1}{2}$, $\frac{3}{4}$, 1	8.25	1	11.5



ARMSTRONG BROS. REVERSIBLE RATCHET STOCKS WITH SOLID PIPE DIES

Vanadium Tool Steel Dies

This Stock is indispensable on certain classes of work such as threading pipe in awkward corners close up to a wall or other obstruction, in ditches, etc., and it will often save on a single job enough time to repay its cost.



It fits any Die of the dimensions listed and any standard size guides for the same. It is instantly reversible for backing the Die and by reversing the die in the holder a thread can be cut on pipe projecting but an inch or two from the wall. There is ample clearance for chips, and the working parts are well protected from sand and dirt. Body is certified malleable iron, finished in yellow baked enamel. Retaining plate and handle are smoothly burnished, finished in bright cadmium plate.

Each set consists of one Reversible Ratchet Stock with an assortment of Dies and guides as listed. Right-hand American National Standard (Briggs) Dies will always be sent if not otherwise specified in order. No. 2-R stock is equipped with a lead screw.

Left-hand Dies can be furnished at special prices. Each set is boxed individually.

Set No.	For Threading Pipe Size, Inches	Dimensions of Dies, Inches	APPROX. WEIGHT, LB.		
			Stock Only	Extra Dies	Set Complete
1-R-3	1/2, 3/4, 1	2 1/2 x 2 1/2 x 3/4	6.5	1.00	9.5
1-R-4	3/8, 1/2, 3/4, 1	2 1/2 x 2 1/2 x 3/4	6.5	1.00	10.5
1-R-5	1/4, 3/8, 1/2, 3/4, 1	2 1/2 x 2 1/2 x 3/4	6.5	1.00	11.5
1-R-6	1/8, 1/4, 3/8, 1/2, 3/4, 1	2 1/2 x 2 1/2 x 3/4	6.5	1.00	13.0
2-R-3	1 1/4, 1 1/2, 2	4 x 4 x 7/8	11.0	3.38	20.5
2-R-4	1, 1 1/4, 1 1/2, 2	4 x 4 x 7/8	11.0	3.38	24.5
2-R-5	3/4, 1, 1 1/4, 1 1/2, 2	4 x 4 x 7/8	11.0	3.38	28.5
2-R-6	1/2, 3/4, 1, 1 1/4, 1 1/2, 2	4 x 4 x 7/8	11.0	3.38	32.5

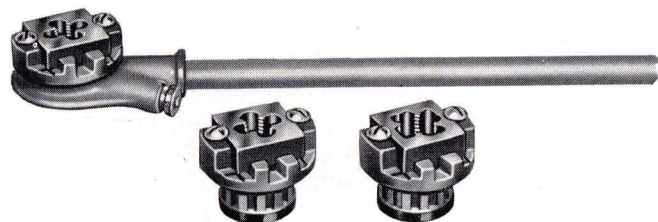
In ordering extra ring guides, specify size and No. of Stock on which it will be used.

Note—Solid Bolt Dies, listed on page 106, can also be used in this Stock.

ARMSTRONG BROS. DROP HEAD REVERSIBLE RATCHET DIE STOCKS

With Solid Pipe Dies—Uses 2x2x1/2" Dies

Exceptionally useful for threading pipe in awkward places where work area is restricted. Instantly reversible for backing the die.



Stocks furnished with assortment of interchangeable heads that thread 1/8 to 1-inch pipe.

Each head has integral guide and carries solid type die.

Size changes instantly made by simply pulling out pawl which releases or secures complete head assembly.

Each set is boxed separately.

Set No.	For Threading Pipe Size, Inches	Approx. Wt., Lb. Complete Set
0-D-1	1	4.62
0-D-2	3/4, 1	6.62
0-D-3	1/2, 3/4, 1	8.62
0-D-4	3/8, 1/2, 3/4, 1	10.62
*0-D-4A	3/8, 1/2, 3/4, 1	18.25
0-D-5	1/4, 3/8, 1/2, 3/4, 1	12.62
0-D-6	1/8, 1/4, 3/8, 1/2, 3/4, 1	14.62
0-D Extra Head, Complete with Any One Size Die; Approximate Weight, 2 Lb.		

*Set No. 0-D-4A furnished in fitted steel case with handle and hasp.

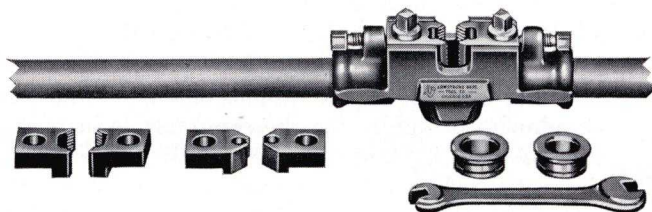
Extra Dies, 2x2x1/2—see page 105.



ARMSTRONG BROS. ADJUSTABLE DIES IN SETS WITH STOCKS

The Dies in these sets are made from special vanadium tool steel with backed-off chasers making them easy cutting and long lasting.

ADJUSTABLE PIPE DIES IN SETS WITH STOCKS



Each set consists of one Stock complete with ring guides, an assortment of Dies as listed and a drop forged wrench. American National Standard (Briggs) right-hand Dies will be sent unless otherwise specified.

Adjustable guide furnished only when specified.

Each set is boxed individually.

Set No.	For Threading Pipe Size, Inches	APPROX. WEIGHT, LB. SET COMPLETE	
		With *Adjust. Guides	With Ring Guides
2-A	Any One Size	8.5	10.0
2-A-2	$\frac{1}{2}$, $\frac{3}{4}$	9.5	11.0
2-A-3	$\frac{1}{2}$, $\frac{3}{4}$, 1	10.5	12.0
2-A-4	$\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, 1	11.5	13.0
2-A-5	$\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, 1	12.5	14.0
2-A-6	$\frac{1}{8}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, 1	13.5	15.0
3-A	Any One Size	20.0	21.5
3-A-2	$1\frac{1}{2}$, 2	24.0	25.5
3-A-3	$1\frac{1}{4}$, $1\frac{1}{2}$, 2	29.0	30.5
3-A-4	1, $1\frac{1}{4}$, $1\frac{1}{2}$, 2	32.0	33.5
3-A-5	$\frac{3}{4}$, 1, $1\frac{1}{4}$, $1\frac{1}{2}$, 2	37.0	38.5
3-A-6	$\frac{1}{2}$, $\frac{3}{4}$, 1, $1\frac{1}{4}$, $1\frac{1}{2}$, 2	41.0	42.5

*For Adjustable Guides, see page 106.

ADJUSTABLE BOLT DIES IN SETS WITH STOCKS

The Stocks in these sets are our regular pipe Stocks listed and described on page 107, and the Dies described and listed on page 107.

Unless otherwise specified, Dies with right-hand American National Standard Coarse thread (U.S. Std.) will be shipped. However American National Fine (S.A.E.) Std. and Whitworth Standard, right or left-hand thread Dies can be furnished at special prices, except that No. 3-A bolt dies are not available, in any size, with American National Fine (S.A.E.) thread.

Each set consists of one Stock complete with ring guides, an assortment of Dies as listed and wrench. Each set is boxed individually.

Set No.	For Threading Bolts Diameter, Inches	Approx. Wt., Lb. Complete Set
2-AB-1	$\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, 1	11.50
2-AB-2	$\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, 1	13.50
2-AB-3	$\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$	13.50
2-AB-4	$\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, 1, $1\frac{1}{8}$, $1\frac{1}{4}$	13.50
2-AB-5	$\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, 1	15.50
2-AB-6	$\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, 1, $1\frac{1}{8}$, $1\frac{1}{4}$	17.00
3-AB-1	1, $1\frac{1}{4}$, $1\frac{1}{2}$, $1\frac{3}{4}$, 2	33.00
3-AB-2	1, $1\frac{1}{8}$, $1\frac{1}{4}$, $1\frac{1}{2}$, $1\frac{3}{4}$, 2	37.00

For list of Standard Bolt Threads, see page 107.

ARMSTRONG BROS. ADJUSTABLE RATCHET STOCK WITH ADJUSTABLE PIPE DIES

ARMSTRONG BROS. Adjustable Ratchet Stocks are exceptionally useful for threading pipe in most out of the way places—close to walls, in corners, under limited working space.

This set will thread from $\frac{1}{8}$ to 1-inch pipe as well as many kinds of Bolts, Rods and Tubing. The stock can be used with any similar dies of standard dimensions. The stock is instantly reversible for backing off the die.

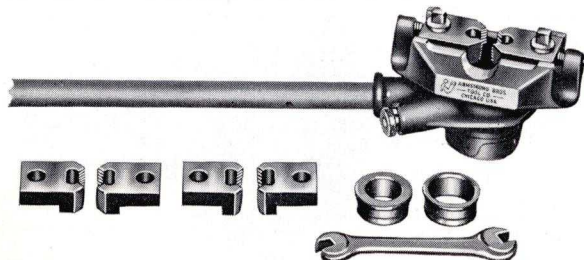
The body is certified malleable iron, finished in yellow baked enamel. Handle is smoothly burnished, finished in bright cadmium plate.

Each set consists of one reversible ratchet stock with ring guides, an assortment of dies as listed and wrench. Unless otherwise specified, right-hand American National Standard (Briggs) Thread Dies will be shipped.

Left-hand dies are available at special prices.

Each set boxed individually.

For extra dies, see page 107.



Set No.	For Threading Pipe Size, Inches	Width Die Inches	APPROXIMATE WEIGHT, LB.		
			Extra Dies per Pair	Stock Only less Dies and Ring Guides	Set Complete
2-BR-3	$\frac{1}{2}$, $\frac{3}{4}$, 1	$1\frac{1}{2}$	.75	8.5	10
2-BR-4	$\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, 1	$1\frac{1}{2}$	.75	8.5	11
2-BR-5	$\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, 1	$1\frac{1}{2}$	.75	8.5	12
2-BR-6	$\frac{1}{8}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, 1	$1\frac{1}{2}$	.75	8.5	13

In ordering extra ring guides for any stock listed above, specify size required and stock number.



ARMSTRONG BROS. DROP HEAD RATCHET PIPE THREADERS

These threaders are especially designed for use in close quarters where a small compact tool is required. The die heads can be changed instantly, a pull of the ratchet pawl releases the complete head.

No. 00



No.	For Threading Pipe Sizes, Inches	Weight Lb.
00-2	$\frac{1}{2}$, $\frac{3}{4}$	5.50
00-3	$\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$	7.00
00-4	$\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$	8.75
00-5	$\frac{1}{8}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$	9.75

Extra Parts

No.	Description	Wt., Lb.
00-R	Ratchet with Handle	3.0
.....	*Die Heads with Right-Hand Dies, $\frac{1}{8}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, or $\frac{3}{4}$ ", Any One Size	1.5

*In ordering extra Die Heads, indicate size required and Ratchet number.

No. 11



No.	For Threading Pipe Sizes, Inches	Weight Lb.
11-3	$\frac{1}{2}$, $\frac{3}{4}$, 1	10.
11-4	$\frac{1}{2}$, $\frac{3}{4}$, 1, $1\frac{1}{4}$	13.
11-4A	$\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, 1	12.
11-5	$\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, 1, $1\frac{1}{4}$	14.
11-5A	$\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, 1	14.
11-6	$\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, 1, $1\frac{1}{4}$	14.5
11-6A	$\frac{1}{8}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, 1	15.5
11-7	$\frac{1}{8}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, 1, $1\frac{1}{4}$	18.

Extra Parts

No.	Description	Weight Lb.
11-R	Ratchet with Handle	4.0
.....	*Die Heads with Right-Hand Dies, $\frac{1}{8}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, 1, $1\frac{1}{4}$, Any One Size	2.0

*In ordering extra Die Heads, indicate the size required and specify Ratchet number.

No. 12

No.	For Threading Pipe Sizes, Inches	Weight Lb.
12-4	1, $1\frac{1}{4}$, $1\frac{1}{2}$, 2	18.75
12-5	$\frac{3}{4}$, 1, $1\frac{1}{4}$, $1\frac{1}{2}$, 2	21.50
12-6	$\frac{1}{2}$, $\frac{3}{4}$, 1, $1\frac{1}{4}$, $1\frac{1}{2}$, 2	24.50

Extra Parts

No.	Description	Wt., Lb.
12-R	Ratchet with Handle	4.5
.....	*Die Heads with Right-Hand Dies, $\frac{1}{2}$, $\frac{3}{4}$, 1, $1\frac{1}{4}$, $1\frac{1}{2}$, 2, Any One Size	3.0

*In ordering extra Die Heads, indicate size required and Ratchet number.

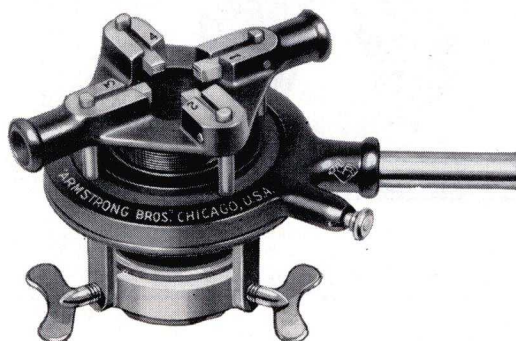


ARMSTRONG BROS. PIPE THREADERS

RECEDING RATCHET PIPE THREADER NO. 1-A

For Threading 1 to 2-Inch Pipe

This Threader is equipped with a reversible Ratchet and will thread 1 to 2-inch pipe with speed and precision in confined or difficult positions. The ratchet will rotate the stock when the working arc is limited to only 10 degrees. When conditions do not require the ratchet, this threader may be used as a two-handed stock. Extra handle for this purpose is included. The body is certified malleable iron and finished in yellow baked enamel. Handles are finished in bright cadmium plate.



ARMSTRONG BROS. Chasers are made of special vanadium tool steel, carefully hardened, drawn, tempered and tested. For a complete description, see page 113.

Each threader is boxed complete with four sets of chasers for threading 1, 1 $\frac{1}{4}$, 1 $\frac{1}{2}$ and 2-inch pipe, with ring guides. Right-hand American National Standard (Briggs) Chasers will always be sent unless otherwise ordered.

No.	For Threading Pipe Size Inches	APPROXIMATE WEIGHT, LB.			
		Extra Handles per Pair	Ring Guides	Extra Chasers per Size	Complete
1-A	1, 1 $\frac{1}{4}$, 1 $\frac{1}{2}$, 2	3.26	.63	.38	30

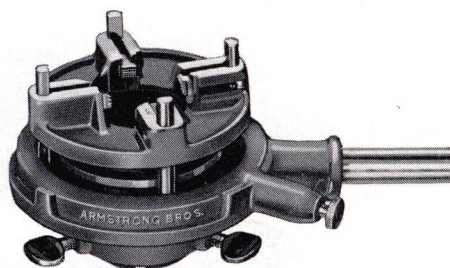
In ordering extra chasers or ring guides be sure to specify size required.

RECEDING RATCHET PIPE THREADER NO. 1-R

For Threading 1 to 2-Inch Pipe

This Threader is equipped with a reversible ratchet and will speedily thread 1 to 2-inch pipe in confined or difficult positions. The body is certified malleable iron finished in yellow baked enamel. Handles are cadmium plated. This Ratchet Threader is furnished equipped with one ratchet handle and four sets of chasers, one for each size pipe. Adjustable for cutting standard, oversize or undersize threads. Chasers are the same as used in 1-A Receding Ratchet Threader, described above. Each threader is boxed complete with four sets of chasers.

No.	For Threading Pipe Size Inches	APPROX. WEIGHT, LB.	
		Extra Chasers per Size	Threader Complete
1-R	1, 1 $\frac{1}{4}$, 1 $\frac{1}{2}$, 2	.38	20



GEARED RECEDING PIPE THREADER NO. 2

For Threading 2 $\frac{1}{2}$ to 4-Inch Pipe

This Threader operates through reduction gears which enable one man to thread 2 $\frac{1}{2}$ to 4-inch pipe with ease. The body is certified malleable iron and finished in yellow baked enamel. Handles are finished in cadmium plate.



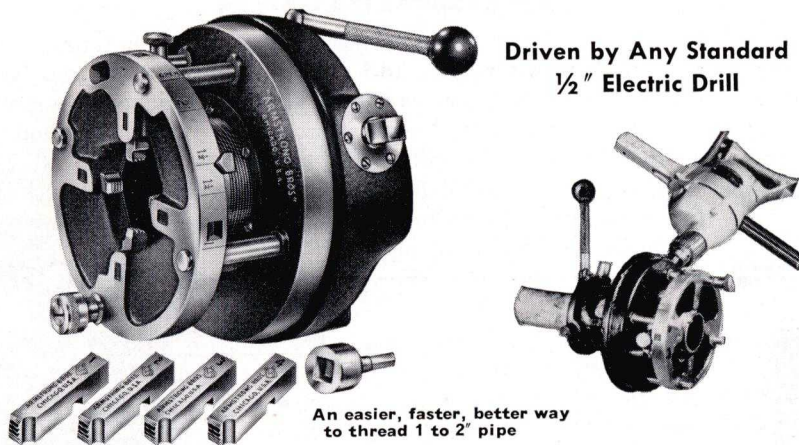
ARMSTRONG BROS. Chasers are made of special vanadium tool steel and are carefully hardened, drawn, tempered and tested. For complete description, see page 113.

Each threader comes complete in a wooden box with four sets of chasers for threading 2 $\frac{1}{2}$, 3, 3 $\frac{1}{2}$ and 4-inch pipe, one each 2 $\frac{1}{2}$, 3, 3 $\frac{1}{2}$ and 4-inch guides, one set screw wrench and an all-steel ratchet handle (packaged separately).

No.	For Threading Pipe Size Inches	APPROXIMATE WEIGHT, LB.					
		Extra Ratchet Handle Complete	Extra Lifting Handles	Extra Set Screws	Extra Guides	Extra Chasers per Size	Threader Complete
2	2 $\frac{1}{2}$, 3, 3 $\frac{1}{2}$, 4	7.5	1.0	.38	2.75	2.0	95



ARMSTRONG BROS. NO. 165 PORTABLE POWER PIPE THREADER



Driven by Any Standard
1/2" Electric Drill

An easier, faster, better way
to thread 1 to 2" pipe

The ARMSTRONG BROS. No. 165 Portable Power Pipe Threader has been designed to operate with any 1/2-inch electric drill. It is sturdy in construction, compact in design and can be easily taken to the job as it only weighs 26 pounds. All moving parts run on anti-friction bearings for ease of operation and long life. Equipped with one set of High Speed Steel Chasers, Right-Hand American National Standard (Briggs), which are easily adjusted by a cam plate index lever to thread 1, 1 1/4, 1 1/2 or 2-inch pipe. The pipe holder is unique in design; has positive grip; is easily adjusted.

Each Pipe Threader is furnished in a wooden box complete with one set of High Speed Steel Chasers, right-hand American National Standard (Briggs), and drive adapter.

No.	For Threading Pipe Size, Inches	APPROXIMATE WEIGHT, LB.		
		Extra Drive Adapters	Extra Chasers Set (4)	Complete
165	1, 1 1/4, 1 1/2, 2	.38	1.5	26

ARMSTRONG BROS. CHASERS

For Receding Post Type Pipe Threaders
For Threading 1 to 4" Pipe



Chasers for No. 2 Geared Threader

These Chasers are made of special Vanadium Tool Steel. The cutting teeth are carefully hobbled and backed off for clearance. Each die segment is plainly marked with cutting size and number.

Hardened, drawn, tempered and tested, ARMSTRONG BROS. Chasers are extra free cutting and accurate in every respect. They are standard in outside dimensions and will fit other makes of stocks intended for this type of die.



Chasers for Nos. 1-A
and 1-R Threaders

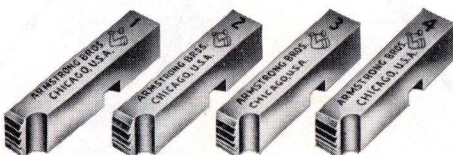
Each set of Chasers is furnished complete in a wire clip. Unless otherwise ordered, Right-Hand American National Standard (Briggs) Chasers will be sent.

For list and description of Nos. 1-A, 1-R, and 2 Threaders, see page 112.

For Threader (Stock No.)	For Threading Pipe Size, Inches	Approximate Weight, Lb.
1A & 1R	1, 1 1/4, 1 1/2, 2	1.5
2	2 1/2, 3, 3 1/2, 4	7.0

SELF-CONTAINED DIE STOCK CHASERS

For Threading 1 to 2" Pipe



ARMSTRONG BROS. Self-Contained Die Stock Chasers will fit Nos. 65 & 85 series Rigid type Threaders or ARMSTRONG BROS. No. 165 Portable Power Threader. They are made of High Speed Steel. The cutting teeth are carefully hobbled and backed off for clearance. Each die segment is hardened, drawn, tempered, tested and is plainly marked with cutting size and number.

Set of 4 Chasers, Approximate Weight, 1 1/2 lb.

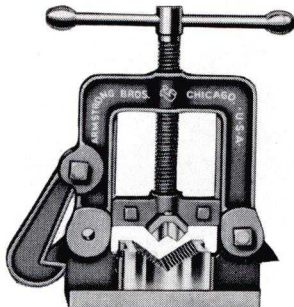


ARMSTRONG BROS. PIPE VISES

STANDARD PIPE VISES

Bench Type

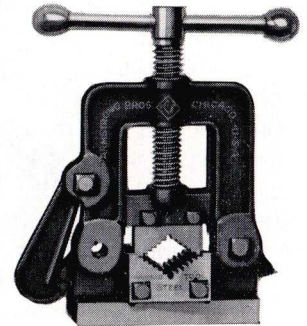
These Vises are of improved design and superior workmanship. They are automatic locking and combine convenient weight with strength and quick action. Frame and base are made of certified malleable iron. Jaws are tool steel, carefully milled, hardened, tempered and tested. Hooks are drop forged of steel and guaranteed against breaking. Body is finished in yellow baked enamel; jaws, screw and handle in bright cadmium plate. Nos. 700, 70, 71, 72 and 73 come equipped with one-piece full length jaws which grip the pipe along its entire length thus eliminating the possibility of bending small size pipe and tend to eliminate marring of pipe.



Nos. 700, 70, 71, 72, 73

No.	Holds Pipe Inches	APPROX. WT., LB.	
		Extra Jaws per Set	Complete
*700	1/8 to 1 1/2	.75	5.0
*70	1/8 to 2	2.00	7.5
*71	1/8 to 2 1/2	2.00	10.0
*72	1/8 to 3 1/2	3.76	16.0
*73	1/8 to 4 1/2	2.75	25.0
74	1/2 to 6	5.00	49.0
75	1 to 8	8.80	81.0

*With one-piece full length jaws.



Nos. 74 and 75

OPEN SIDE PIPE VISE

For Bench or Post

Within its range this Vise combines all the desirable features, strength, quick action, convenience of operation and solid gripping power. Body is certified malleable iron; steel screw and handle. Tool steel jaws have milled teeth and are carefully heat treated, oil tempered and tested. Body is finished in yellow baked-on enamel; jaws, screw and handle in bright cadmium plate.

By means of the chain attachment, this vise can be solidly fastened to any post, telephone pole, tree or like support. Steel proof-tested chain passes through body of vise, eliminating use of hooks or lugs where strain is greatest. Wedge is certified malleable iron. Unless otherwise specified, each vise will be furnished with chain attachment, complete.



No.	Holds Pipe Size Inches	APPROXIMATE WEIGHT, LB.			
		Extra Jaws Set of 3	Chain Attach. Only	Vise Only	Complete
10	1/8 to 2	1.5	1.8	10.87	12.75

ARMSTRONG BROS. PIPE VISE STAND

With Pipe Bender

The ARMSTRONG BROS. 4-legged Pipe Vise Stand is of sturdy construction, built to accommodate standard types of vises up to 3 1/2 inches in capacity.

It can be quickly assembled or disassembled and is easily carried from job to job.

The legs are rigid and are correctly spread to insure steadiness at all times.

A large, solid shelf provides ample storage space for oil cans, dies, cutters, etc.

No.	Description	Approx. Wt., Lb.
471	Complete with No. 71 One-Piece Full Length Jaw Vise and 4 Legs	57
4	Complete with Legs, without Vise	47





ARMSTRONG BROS. CHAIN PIPE VISE

Drop Forged Steel—Hardened Jaws

For Holding Pipe, Rods, Bolts, etc. $\frac{1}{8}$ to 8-Inch Diameter

Extremely compact, convenient, quick in action; combines maximum strength and capacity with minimum weight; is especially well adapted for use on outside jobs as it can very handily be carried in tool bag or chest and is easily attached to either post or bench.

The base, handle and jaws are drop forged of selected quality steel. Jaws are heat treated and tempered for file sharpening. Chains are the same high quality as furnished on our

ARMSTRONG BROS. Chain Tongs. They are manufactured by us in our own plant and are fully guaranteed as are all other parts of ARMSTRONG BROS. Chain Vises.



The jaws of Nos. 1-C and 2-C are drop forged in one piece. This design not only is most solid construction but also gives a full support between the jaws for holding small size pipe, thus eliminating the possibility of bending small size pipe and also the marring of pipe. These important features are found only on ARMSTRONG BROS. Chain Vises.



Nos. 1-C, 2-C with One-Piece Drop Forged Jaws

Illustration at right shows drop forged one-piece jaws of Nos. 1-C and 2-C ARMSTRONG BROS. Chain Pipe Vises giving full support for small size pipe.

Each vise is boxed separately—Screws will be sent with chains unless “chain only” is specified.

No.	Holds Pipe Size Inches	APPROXIMATE WEIGHT, LB.	
		Extra Jaws per Pair	Complete
*1-C	$\frac{1}{8}$ to $2\frac{1}{2}$	1.25	5.00
*2-C	$\frac{1}{4}$ to 4	3.50	13.38
3-C	$\frac{1}{4}$ to 6	4.20	19.50
4-C	$\frac{1}{4}$ to 8	8.12	32.25

*Special fitting plate required. When a No. 1-C or 2-C Chain Pipe Vise is purchased in combination with a Pipe Vise Saddle, we will fit the Pipe Vise Saddle with a special fitting plate for which we do not charge.

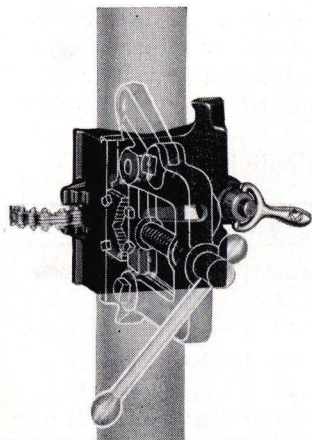
ARMSTRONG BROS. PIPE VISE SADDLE

For Holding Pipe Vises

By means of its Flat Link Chain, this portable vise base attaches instantly to round or square posts. Its wide range, handiness and sure grip on round steel posts as well as on wood posts of any shape makes this a device long needed by plumbers, steamfitters, electricians.

The body is certified malleable iron and is slotted to hold rigidly all standard make vises in the popular styles and sizes. The tightening handle is drop forged and has a hardened steel nut; the flat link chain is the same high quality chain furnished in our chain pipe vises. Standard chain is 27 inches long and extra length chain can be furnished on specification.

Each Pipe Vise Saddle is boxed separately complete with bolts, nuts and washers for attaching vises.



No.	Description	Wt., Lb.
50	With 27-Inch Length of Flat Link Chain	12

Following ARMSTRONG BROS. Pipe Vises can be used with No. 50 Pipe Vise Saddle:
 Nos. 700, 70, 71 and *72.....Standard Pattern
 No. 10.....Open Side Post Vise
 Nos. *1-C, *2-C.....Chain Vise

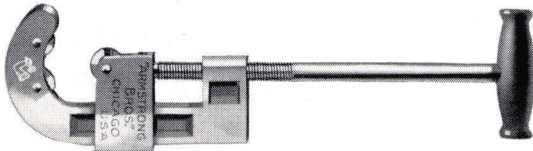
*Special fitting required; no extra charge for fitting Pipe Vise Saddle when furnished with vise.



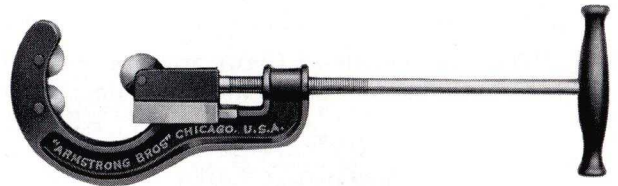
ARMSTRONG BROS. PIPE CUTTERS

BARNES TYPE

These Pipe Cutters are very convenient on general work and are indispensable when cutting under conditions where the cutter cannot be revolved entirely around the pipe.



Nos. 1-B and 2-B



Nos. 3-B, 4-B and 5-B

The body is certified malleable iron. Pins are tool steel, carefully hardened.

The cutter wheels are made from a special alloy tool steel; they are carefully hardened and heat treated to insure maximum strength and efficiency.

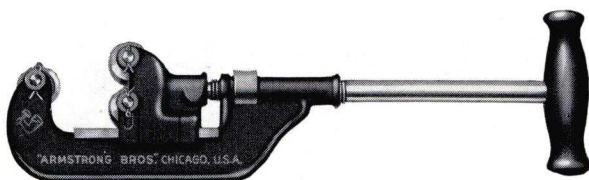
Parts are interchangeable with similar parts of other standard makes.

Nos. 1-B and 2-B, finish: Burnished bright and clear lacquered with yellow baked enamel on handle.
Nos. 1-B, 2-B packed in individual boxes.

Nos. 3-B, 4-B and 5-B, finish: Body and handle are finished in yellow baked-on enamel; the screw is polished and clear lacquered.

No.	Capacity Pipe Inches	APPROXIMATE WEIGHT, LB.		
		Pins, per Doz.	Wheels	Complete
1-B	$\frac{1}{8}$ to 1	.75	.38	3.00
2-B	$\frac{1}{2}$ to 2	.75	.50	5.25
3-B	$1\frac{1}{2}$ to 3	.75	.63	8.00
4-B	$2\frac{1}{2}$ to 4	1.50	1.13	12.00
5-B	4 to 6	1.50	2.00	20.00

TRIMO TYPE



SAUNDERS TYPE



Body of this Pipe Cutter is of drop-forged one-piece construction. Screw runs through a case-hardened nut which takes up all wear and which can be easily replaced after long service.

Pins and rollers are made of tool steel, carefully machined and hardened. Cutter wheels are of improved shape, made from a special alloy tool steel and are hardened and heat treated.

This Pipe Cutter can be used with one cutter wheel and two rollers, or with three cutter wheels.

Furnished with two rollers and one cutter wheel unless otherwise ordered. Parts are interchangeable with similar parts of other standard makes.

Body and handle finished in yellow baked-on enamel; screw is polished and clear lacquered.

Packed in individual boxes.

This Pipe Cutter can be used to advantage wherever working conditions permit of revolving the cutter entirely around the pipe: only one cutter wheel is used and the action of the two hardened rollers eliminates almost entirely the burr raised by the cutter wheel. Screw bears on hardened tool steel insert. The point of the screw is hardened. Parts are interchangeable with similar parts of other standard makes. Body and handle finished in yellow baked enamel; other parts burnished bright and finished in clear lacquer.

Nos. 1-S, 2-S packed in individual boxes.

No.	Capacity Pipe Inches	APPROX. WEIGHT, LB.				
		Nuts	Rollers	Pins with Cutter Pins (10)	Extra Cutter Wheels	Complete
1-T	$\frac{1}{8}$ to $1\frac{1}{4}$	.06	.18	.43	.63	5.75
2-T	$\frac{1}{4}$ to 2	.06	.18	.43	.63	6.25

No.	Capacity Pipe Inches	APPROX. WEIGHT, LB.			
		Pins (10)	Rollers	Extra Cutter Wheels	Complete
1-S	$\frac{1}{8}$ to 1	.60	.13	.50	3.0
2-S	1 to 2	.60	.13	.63	6.0
3-S	2 to 3	.75	.25	1.00	11.5
4-S	$2\frac{1}{2}$ to 4	.75	.25	1.00	15.0
5-S	4 to 6	1.00	.31	1.25	23.0



ARMSTRONG BROS. KNIFE BLADE CUTTER WHEELS

Fitting Standard Pipe Cutters

Cadmium Finish



ARMSTRONG BROS. Cutter Wheels are made from selected alloy tool steel, accurately machined, heat treated, hardened, oil tempered.

These thin sharp cutter wheels hold their cutting edge longer and cut very much faster and cleaner with less power than is the case when using ordinary old style wheels made from common steel.

All ARMSTRONG Pipe Cutter Wheels packaged 10 to a box.

Special wheels for cast iron or extra heavy steel pipe can be furnished when desired, at special prices.



No.	Approximate Weight, Lb.	WILL FIT THESE STANDARD MAKES	
		Type	Number
1-B	.38	Barnes	1 All Makes
2-B	.50	Barnes	2 All Makes
3-B	.63	Barnes	3 All Makes
4-B	1.13	Barnes	4 All Makes
5-B	2.00	Barnes	5 to 7 All Makes
1-S	.50	Saunders	1 All Makes
2-S	.63	Saunders	2 All Makes
3-S	1.00	Saunders	3, 4 or 5 All Makes
1-T	.63	Trimo	1-T or 2-T
2-T	.63	Trimo	Same as 1-T
3-T	.94	Trimo	3-T or 4-T
1-R	1.00	Rigid	1-R and 2-R, also 2-N
2-R	1.00	Rigid	Same as 1-R
3-R	2.00	Rigid	3-R and 4-R
4-R	2.00	Rigid	Same as 3-R

ARMSTRONG BROS. RATCHET PIPE REAMERS

Drop-Forged, Ball Bearing Action

A high grade general service Ratchet Reamer for removing burrs caused by cutting pipe.



The Ratchet is drop forged of steel, while the spindle, gear, nut and reversing jigger are machined from steel and hardened throughout. The polished handle is removable. The applied pressure when using this ratchet reamer bears on a ball bearing which makes this reamer very easy to operate.

The Reamer themselves are of spiral fluted design and are drop forged of high grade tool steel, milled, ground and hardened. The reamer cannot drop out of ratchet socket, yet can be instantly released.

Ratchet complete with one Reamer of listed capacity. Each complete tool is boxed separately. Extra reamers are individually boxed.

Complete Tool

No.	Capacity Pipe Inches	Extreme Length Inches	Approximate Weight, Lb.
122	1/8 to 1	18	4 1/2
122 1/2	1/4 to 1 1/4	18	4 3/4
124	1/4 to 2	18	5 1/2

Extra Reamers Only

No.	Capacity Pipe Inches	Style of Shank
42	1/8 to 1	Bit Brace
42 1/2	1/4 to 1 1/4	Bit Brace
44	1/4 to 2	Bit Brace



ARMSTRONG BROS. PIPE WRENCH

Drop Forged—All Steel
Cadmium Finish

Perfect balance—resulting from correct design and accurate proportions.

Patented "ball and socket" nut gives increased flexibility and vastly greater strength, especially under heavy side strain, which is so destructive to the ordinary wrench frame. Side pull strain is taken up by two solid forged steel lugs which are reinforced or tied together by a recessed nut, a construction combining compact form with its greatest possible strength.

The novel spring action insures proper gripping position to the movable jaw and imparts just sufficient tension to prevent it getting out of adjustment. Adjusting nut cannot fall out. This is an exclusive and convenient feature which will be appreciated by pipe fitters who have had to hunt for the "fixins" after taking the jaw out of the old style wrenches.



The handle does not act inside a frame and is therefore, not restricted in size, but designed to be strongest at the point of greatest strain and there is no projecting part below line of handle.

The inserted lower jaw is of select tool steel properly hardened to give long life to the teeth. The handle and the movable jaw are drop forged alloy steel.

All parts are absolutely self-cleaning in action, with no chance to clog or gum up.

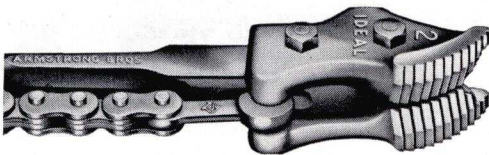
Length.....inches	8	10	14	18	24	36
Capacity.....inches	$\frac{1}{8}$ to $\frac{3}{4}$	$\frac{1}{8}$ to 1	$\frac{1}{4}$ to $1\frac{1}{2}$	$\frac{1}{4}$ to 2	$\frac{1}{4}$ to $2\frac{1}{2}$	$\frac{1}{4}$ to $3\frac{1}{2}$
Approximate Weight, Complete.....lb.	.75	1.50	2.75	4.50	7.50	15.25

Extra parts available: Handles, Yoke, Jaw (or Yoke) Pin, Nut, Spring Assembly, Insert Jaw, Movable Jaw.
In ordering, name part and give tool number.

ARMSTRONG BROS. IDEAL CHAIN TONGS

For Pipe, Fittings, and Flanges

The jaws have straight teeth for pipe and V-shaped teeth for fittings. Drop forged from special high carbon steel carefully milled, heat treated, hardened and tested for toughness and lasting qualities.



Handles forged from spring steel selected to the required stiffness. Chains are proof tested under quality control. Attached to each Flat Link Chain is a leaden seal—evidence of proven strength. This seal, bearing the ARMSTRONG BROS. Trade Mark, indicates that the chain has been tested to $\frac{2}{3}$ of catalog strength. (From 9,800 to 21,800 lb.)

Furnished with flat link chain (as illustrated) unless cable chain is specified.

Wrench No.	CAPACITY		Approx. Length Inches	Flat Link Chain		Cable Chain		Approx. Wt., Lb. Complete
	Size Pipe Inches	Size Fittings Inches		Length Inches	Breaking Strain Lb.	Length Inches	Breaking Strain Lb.	
2	$\frac{1}{2}$ to $3\frac{1}{2}$	$\frac{1}{2}$ to 3	27	$17\frac{1}{2}$	9,800	21	9,000	10
3	1 to 5	1 to 4	38	$22\frac{1}{2}$	12,500	28	12,500	18
4	1 to 8	1 to 6	49	32	15,700	$41\frac{1}{2}$	15,000	27
5	2 to 12	2 to 10	61	50	21,800	$56\frac{1}{2}$	21,800	52

EXTRA PARTS

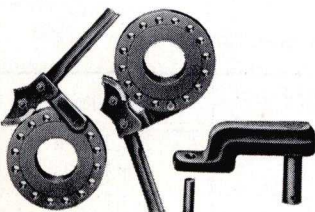
Chain, flat link or cable
*Jaws (pair)
Studs and Nuts (set)
Pins (Pkge. of 10)
In ordering, name part and give tool number.
*If single jaw only is wanted, specify right or left.

IDEAL FLANGE LINK

Consists of a special cast steel link and pin which attaches to Ideal Chain Wrench in place of chain. Works right or left from either side.

For Wrench No.....	2	3	4	5
Capacity, Size Flange.....inches.	1 to 4	2 to 6	2 to 8	$\frac{1}{4}$ to 16
Approx. Wt.: Flange Link.....lb.	1.25	1.75	2.75	4.62
Extra Pins.....lb.	.25	.25	.38	.75

$\frac{1}{4}$ to 20 and $\frac{1}{4}$ to 24-inch sizes for No. 5 wrench also available.





ARMSTRONG BROS. CHAIN PIPE TONGS

Drop Forged

WITH DOUBLE ENDED REVERSIBLE JAWS



The ARMSTRONG BROS. Reversible-Jaw Pipe Tongs have double ended jaws which may be quickly changed, end for end, if the teeth become burred or dull from long use. This feature gives double life—the service of “two tools for the price of one.”

Jaws are drop forged from special high carbon steel, carefully milled, heat treated, hardened and tested for toughness and lasting qualities.

Handles are forged from spring steel selected to give required stiffness.

Chains are proof-tested under quality control. Attached to each is a leaden seal—evidence of proven strength. This seal, bearing the “ARMSTRONG BROS.” Trade Mark indicates that the chain has been tested to $\frac{2}{3}$ of catalog strength.

With ARMSTRONG BROS. Pipe Tongs you are certain of strength beyond your greatest needs—a proved safety factor on which you can rely in an emergency.

With Flat Link Chains Only

No.	*For Pipe Size, Inches	Approx. Length Inches	Flat Chain Length Inches	Breaking Strain Lb.	Approx. Wt., Lb. Complete
30	$\frac{1}{8}$ to $\frac{3}{4}$	$13\frac{3}{4}$	$9\frac{1}{2}$	3,600	1.75
31	$\frac{1}{8}$ to $1\frac{1}{2}$	20	$13\frac{1}{2}$	6,700	5.75
32	$\frac{1}{4}$ to $2\frac{1}{2}$	27	$17\frac{1}{2}$	9,800	10.00
33	$\frac{3}{4}$ to 4	37	$22\frac{1}{2}$	12,500	16.00
33½	1 to 6	$44\frac{1}{2}$	32	14,300	24.00
34	$1\frac{1}{2}$ to 8	$50\frac{1}{2}$	$40\frac{1}{2}$	15,700	31.00
35	2 to 12	$64\frac{1}{2}$	$55\frac{1}{2}$	21,800	50.00
*16	4 to 18	87	$74\frac{1}{2}$	40,000	137.00

EXTRA PARTS

Chain

*Jaws (pair)

Nuts and Studs (set)

In ordering, name part and give tool number.

*If single jaw only is wanted, specify right or left.

*Wrenches for pipe sizes larger than 12 inches are supplied only in non-reversible jaw form as shown below.

WITH SINGLE END JAW

This Chain Pipe Wrench is so designed as to embody the best features of its type and also to eliminate some of the weak points which extensive and exhaustive tests have developed in other makes. By means of the greatly increased bearing of jaw sockets upon the bar, combined with the extra large hardened steel bolt, the jaws are held solidly in place under the most severe use.



With Flat Link Chain



With Cable Chain

The bolt is extra large and the shackle or connecting link is drop forged from chrome-nickel steel. Handles, jaws and chains are made from same materials as described above. Flat link chains are proof-tested under quality control. Shipped with flat link chain unless otherwise specified.

No.	Capacity, Size Pipe Inches	Flat Link Chain			Cable Chain		Approx. Wt., Lb. Complete
		Approx. Length Inches	Length Chain Inches	Breaking Strain Lb.	Length Chain Inches	Breaking Strain Lb.	
10	$\frac{1}{8}$ to $\frac{3}{4}$	14	$9\frac{1}{2}$	3,600	$9\frac{3}{4}$	1,200	1.75
11	$\frac{1}{8}$ to $1\frac{1}{2}$	20	$13\frac{1}{2}$	6,700	$14\frac{1}{2}$	4,000	6.00
12	$\frac{1}{4}$ to $2\frac{1}{2}$	27	$17\frac{1}{2}$	9,800	18	6,000	10.00
13	$\frac{3}{4}$ to 4	37	$22\frac{1}{2}$	12,500	27	10,500	16.50
13½	1 to 6	44	32	14,300	$33\frac{1}{2}$	12,500	23.00
14	$1\frac{1}{2}$ to 8	51	$40\frac{1}{2}$	15,700	42	15,000	32.00
15	2 to 12	65	$55\frac{1}{2}$	21,800	57	19,000	53.00
16	4 to 18	87	$74\frac{1}{2}$	40,000	76	40,000	137.00

EXTRA PARTS

Chain, flat link

Chain, cable

Jaws (pair)

Bolt and Nut (set)

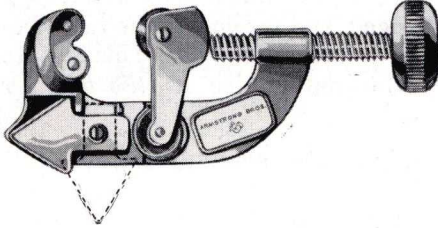
In ordering, name part and give tool number.



ARMSTRONG BROS. TUBING TOOLS

LIGHT TUBE CUTTER NO. 110

This compact tool, although only 5" long will cut brass, copper or similar tubing from $\frac{1}{8}$ " to 1" in diameter. Approximate Weight, 1.00 Lb.



The cutting wheel, mounted on a pivoted arm, is fed into the pipe as the knobbed screw is turned. Arm and wheel are automatically retracted when the tension is released. Two rollers firmly hold tubing in position during operation.

Reamer blade for removing burrs from inside cut tubing, retracts to fit alongside of body.

Each tubing cutter is boxed separately.

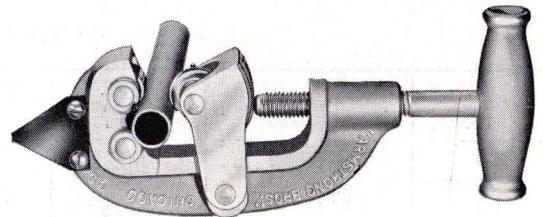
HEAVY DUTY TUBE CUTTER NO. 200

ARMSTRONG BROS. Heavy Duty Tube Cutter is designed for cutting steel tubing and thin walled conduit as well as for copper and aluminum tubing.

Cutter has body of certified malleable iron, is rust proof cadmium plated all over and has reamer blade fixed in position ready for use. Two rollers hold tubing in position during operation.

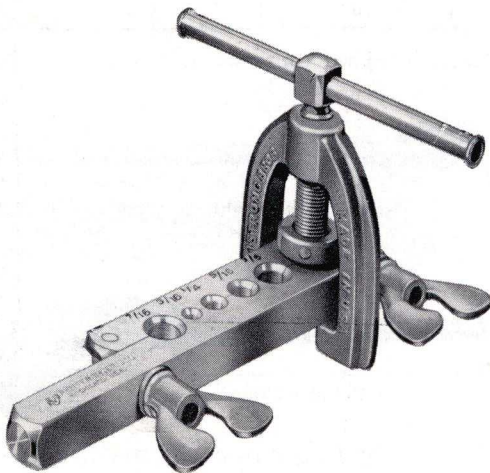
Each heavy duty tube cutter is boxed separately.

In ordering extra cutter wheels, specify tool number.

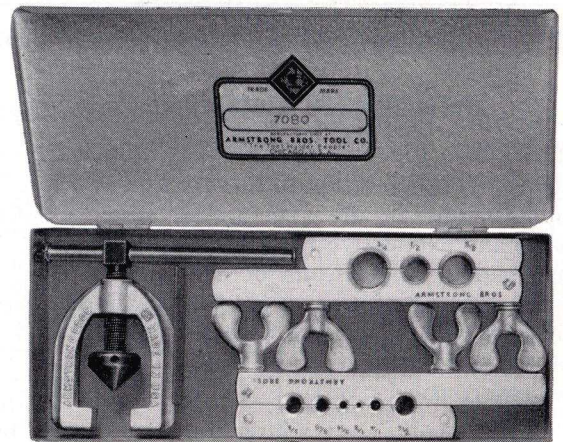


No.	Capacity Inches	APPROX. WEIGHT, LB.		
		Wheels	Rollers	Complete
200	$\frac{1}{4}$ to $1\frac{1}{2}$	.5	.13	3.00

TUBE FLARING TOOL



No. 7076



No. 7080 Set

ARMSTRONG BROS. Tube Flaring Tool is indispensable for aircraft, garage, oil burner and refrigeration work. With this tool you can apply the correct flare to brass, aluminum or soft copper tubing.

Bar is cold rolled steel properly heat treated. Yoke is drop forged from selected steel to give greater strength and longer service.

Design allows easy sliding of yoke over the bar.

No.	For O.D. Tubing, Inches	Approx. Wt., Lb.
7076	$\frac{3}{16}$, $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$ and $\frac{1}{2}$	1.8
7077	$\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{1}{2}$ and $\frac{5}{8}$	1.8

Set No. 7080. Wide-range flaring tool for $\frac{1}{8}$, $\frac{3}{16}$, $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$, $\frac{1}{2}$, $\frac{5}{8}$ and $\frac{3}{4}$ -inch O.D. tubing.

Complete in metal kit.

No. 7080 Set, Approximate Weight, 3.8 Lb.

ARMSTRONG BROS. TOOL CO.

Plant and General Office

5200 W. ARMSTRONG AVE., CHICAGO 30, ILL., U.S.A.

District Sales Offices and Warehouses

NEW YORK, N. Y. SAN FRANCISCO, CALIF.

